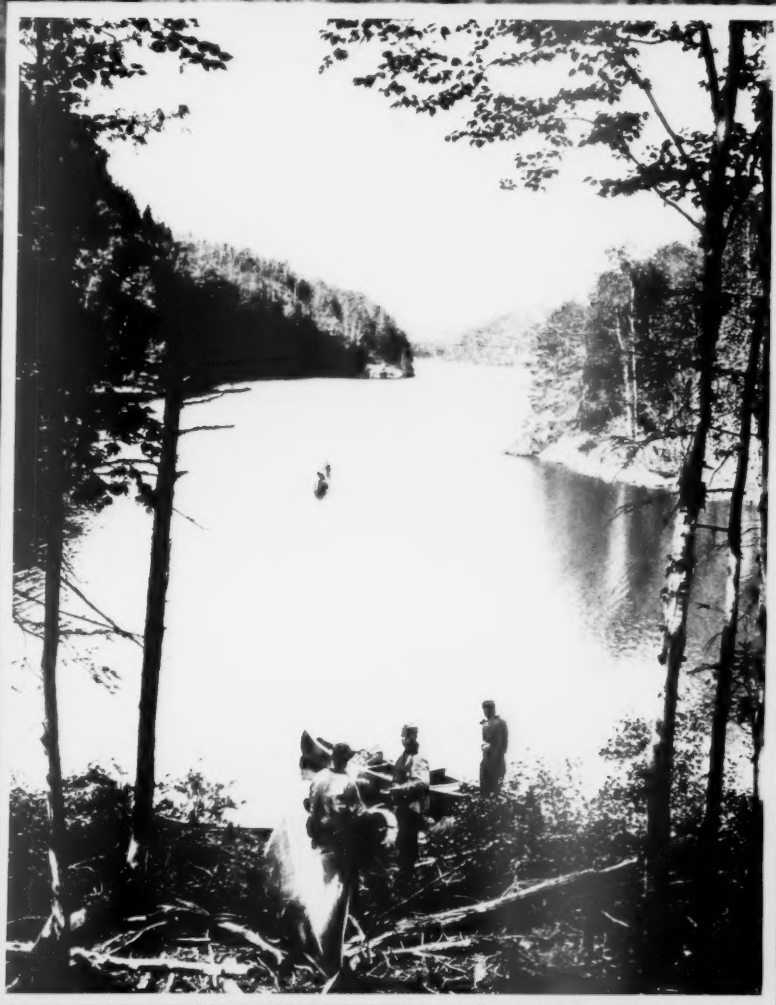


American Forests *and* Forest Life



May, 1928

The American Forestry Association

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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AMERICAN FORESTS AND FOREST LIFE invites contributions in the form of popular articles, stories and photographs dealing with trees, forests, reforestation, lumbering, wild life, hunting and fishing, exploration or any of the many other activities which forests and trees typify. Its pages are open to a free discussion of forest questions which in the judgment of the editor will be of value in promoting public knowledge of our forests and their use. Signed articles published in the magazine do not necessarily reflect the views of the Association. Manuscripts must be accompanied by return postage. Editorial and Publication Office, The Lenox Building, 1523 L Street, Washington, D. C.



A Douglas Fir forest of Oregon typifying the heavy stands of timber in the Pacific Northwest from which the United States is now getting a third of its lumber supplies. How long these forests will last and how fast, after cutting, the lands can be made to grow new forests are questions vital to the country's future timber welfare

AMERICAN FORESTS

Vol. 34

MAY, 1928

No. 413

How Long Will Our Sawtimber Last?

By R. V. REYNOLDS

IN THOSE adventurous times when England, France, and Spain were reaching out for control of North America, one of the greatest obstacles to exploration was the densely forested condition of the country east of the prairies. The towering trees and the undergrowth shut in the traveller, limited his view, and opposed his passage except along certain main trails used by the Indians. We may assume that there was much more water underfoot than at present, both in swamps and in deeper, swifter streams. Horses were of little service in such unbroken forests. Extensive travel was feasible chiefly by some form of navigation, and the streams were the principal highways.

Settlers looked upon the massive tree-trunks that encumbered their plow lands as a nuisance, and treated them accordingly. Once the log cabin and the barn were built, the rest of the trees merely shaded the all too scanty crops, bred fever and ague from miasmatic swamps, and harbored a terrifying assortment of howls, growls, and warwhoops. Consequently, a forest fire which cleared many acres without human toil had the aspect of a kindly act of Providence, provided none of the cows or the neighbors happened to be roasted.

Yet not all of the population approved of wilful timber destruction. Many of the immigrants were of Scottish ex-

traction, and no doubt it irked them sair to see so much sound material go up in smoke, even though the fire spared them many backaches. Governors of provinces, too, and members of their councils, having less intimate acquaintance with the backaches and the warwhoops, were prone to

maunder about the need of preserving the tall, straight pines for masts to equip the Navy of His Britannic Majesty. Nor did they omit to reckon shrewdly on the value of clear white pine and oak plank a palm's breadth in thickness and unbelievably wide, as trading stock with the Old World. Aside from fish and tobacco, fine timber was the best thing the New World had to exchange for the velvets, taffetas, laces, and broadcloth, yea, and the



In the lumber woods of the great Northwest, where logs are handled with the rapidity of an animated movie. Here we have action aplenty in a lumber flume which "shoots" the logs from mountain to mill

casks of Burgundy and *aqua vitæ* so essential to the solution of problems in statecraft. And so we find in the Colonial records indications that more than 200 years ago some extremely far-sighted gentlemen were worrying about the devastation of American sawtimber and prophesying that the local supply, at least, would shortly be exhausted.

Much water has gone under the bridge since that period. Many sawlogs have gone through the mills, which have turned out at least two trillion board feet of lumber since Colonial days. More than half of this total, or about one trillion feet, has been cut since the twentieth century began. Easily half a trillion feet additional of saw-

timber has been used for purposes other than lumber. As recently as the beginning of this century it was commonly said that fully as much had been burned as ever was utilized. Some said twice as much. In addition there has been the ceaseless destruction wrought by insects, disease, and windfall. The timber used plus that destroyed probably far exceeds the five trillion feet estimated as the amount standing in the time of Columbus. Yet America is not swept clean of sawtimber. In fact, we think there is a third as much standing now as when the Pilgrim Fathers stepped ashore.

What are the reasons for these confusing discrepancies? One is the general inaccuracy of our best estimates, complicated by the changing definition of sawtimber, which has become ever more inclusive as the saw mills have been forced to accept smaller logs. Another is forest growth, which has been adding more and more material in unobtrusive fashion as the virgin forests were stripped from the soil. It may be that we have never given due credit to our soil for its ability to reclothe itself with timber, especially when given some protection from fire.

Figures dealing with these matters have always been incomplete and baffling for purposes of forecast. Computations based on them have failed to agree with the evident facts, sometimes varying to such an extent that the results are grotesque. Prophets have arisen from time to time who foretold the end of the sawtimber stand. Some were brave enough to commit themselves to cold print in the matter of the dates when the forests of the United States would be exhausted. Almost invariably they have been too pessimistic, as shown by events of subsequent years.

Half a century ago some Jeremiah must have rubbed lumbermen on the raw, for in 1873 he drew the following broadside from a well-known trade journal:

"We do not believe that there is any need for sensational alarm concerning a depletion of our forests; viewing it in a purely business light, it is absurd to suppose that men will

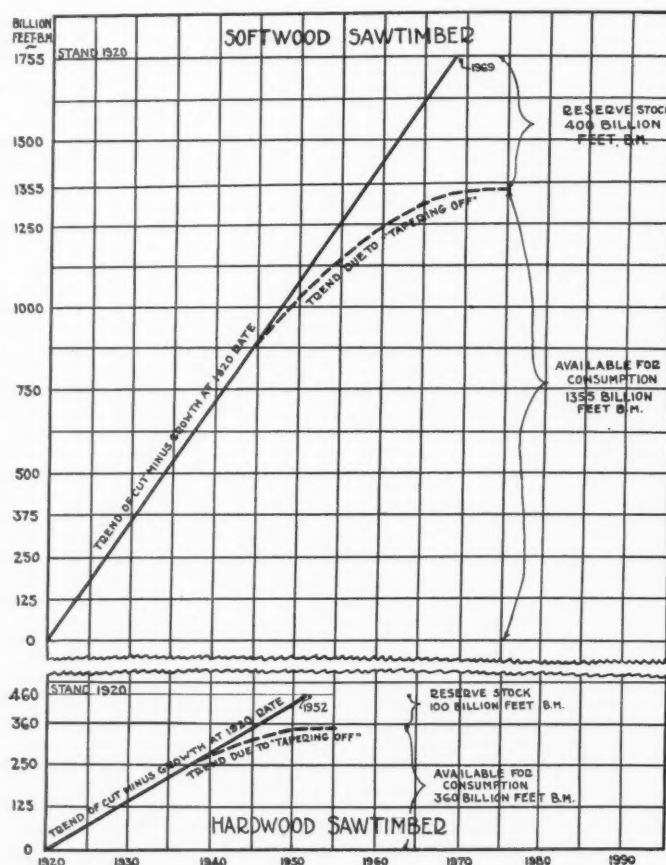
totally destroy such an immense source of wealth without taking some measures for its reproduction; and we venture the assertion that forests planted in the next decade, will, before the terrible calamity (!) of this predicted timber famine falls upon us, grow into sufficient magnitude to supply the nation's needs until another generation of famine 'croakers' arises to alarm the timid with the *same old story*."

Thirty years of national expansion drifted by. The timber was cut faster and faster. Fires continued their ravages practically unchecked at any point. Nobody planted the forests suggested by the editorial optimist. No State except New York had more than the germ of an organization for timber protection and culture. Half a dozen estimates of the amount of timber were made, the tendency being to increase the quantity as time went on.

In 1902 Dr. Fernow said that the stand of sawtimber was two trillion board feet, which would be used up between 1937 and 1952. Then came a strenuous President, and a strenuous Chief Forester in charge of the newly created Forest Service. Conservation of national resources became a recognized part of the Federal program. One of the things needed was statistics, and the Forest Service statistician

gathered them with tireless zeal. In a few years, working with the Census Bureau, he assembled a great deal of new information about the forest industries. A stream of annual bulletins showing statistics of forest products began to flow through the Government Printing Office.

Thus recent estimates of stand, consumption, fire and growth were at hand, and their combined indications naturally seemed more reliable than any record of the past in their bearing on the permanence of the sawtimber supply. So the man of figures yielded to temptation, and in 1907 published a forecast of the probable date of exhaustion of the stand. Several combinations of the statistics were possible, and out of these his most hopeful view admitted that the last stick would not be cut until 1938.



This chart, based upon the 1920 estimates of the United States Forest Service, shows the general trend of forest exhaustion. The dotted lines indicate an eventual "tapering off" in consumption, which the author believes will be forced upon the American people by reduction of the virgin stand and other economic factors

About this time it became evident that the lumber cut of some of the leading species had passed the peak, and there were other less definite evidences that the consumption of sawtimber might be expected to diminish. So in 1909 the forest statistician amplified his previous statements into somewhat less startling form by writing in the *Atlas of American Agriculture*:

"This (the combination of the statistics) would indicate an exhaustion of the timber supply in about 30 years (about 1938) were present conditions to continue unchecked, and it is upon estimates like these that the widespread cry of an impending timber famine is based."

The author wisely continues:

"The term timber famine is after all a relative one. If we mean a condition in which the demand exceeds the supply, and in consequence the price rises and consumption is restricted, then we may truly say that a famine has already begun with certain of our important woods—white pine, oak, yellow poplar and hickory, for example—and that such a condition will later occur in other woods."

". . . Of course, no one believes for an instant that our timber will be utterly exhausted, but we shall have to pay the penalty of mismanagement by being forced to depend upon timber inferior in quality and deficient in quantity."

He also adds:

". . . Fifteen or twenty years hence (1924-29) will see the great bulk of the southern yellow pine cut, and heavily increased drains upon the Pacific Coast forests will have greatly reduced their volume."

The danger of timber exhaustion by 1938 was publicly announced in an address by President Roosevelt and by Chief Forester Pinchot, who stated in an article, entitled "*A New Patriotism*" (*World's Work*, May, 1908), "We have timber for less than 30 years *at the present rate of cutting.*" The italics are inserted. Had they been in the original copy, it is doubtful whether they would have done much good. The tendency of the public is, quite naturally, to remember the striking part of the statement and to disregard or forget the qualifying phrase.

Mathematically, the forecast probably was justified by the then existing figures. Nevertheless this prophecy, like most of its predecessors, was too pessimistic. The prediction of the exhaustion of southern pine and reiterations of this statement probably helped to hurry the invasion of the Pacific Coast softwoods. That invasion has proved premature because an unsuspected amount of second growth in the south has postponed the exhaustion of that region indefinitely beyond the predicted dates, which have now arrived. Some of the lumbermen in both regions have suffered from the intense inter-regional competition and over-production which resulted.

It should not be overlooked, however, that both the Lake states and the south were also invaded prematurely, entirely without the stimulus of Government predictions. In each instance there was waste of timber and lumbermen suffered losses. In each instance lumbermen apparently figured on the date when their virgin timber would be cut out, with-



The long clean boles of the Longleaf Pine of the South have yielded billions of feet of structural timber needed in the building of the New World

out enough consideration of the second growth coming on old cuttings. The southern pine statement and its subsequent reiterations were based largely on aggregate opinions and reports of lumbermen, and not on actual investigations of timber conditions throughout the South, which would have required an amount of time and money which was not available.

This is an outstanding example of a national loss which may be attributed in part to the lack of sufficient skilled investigation on the ground. It probably will not be the last loss due to that cause. The need of a detailed and complete inventory of the forest wealth of the United States has been repeatedly urged. Three million dollars is the estimated cost of such a survey. That is less than one-hundredth part of the value of the lumber cut in one year as it lies at the mill. The lumbermen are now expending a five-million dollar fund gathered to promote the use of lumber, and to offset in other ways the losses of lumbermen arising in part from premature exploitation of the Pacific virgin timber. If it had been possible to array the economic facts in time, there might have been no need for the expenditure of five millions by the lumbermen.

Considering the lack of satisfaction in all previous estimates of timber exhaustion it is hardly surprising that no such forecast has been made based on the Forest Service figures of 1920. The practical usefulness of such an estimate will no doubt be questioned. Yet a comparison of indications based on the 1920 statistics with the date of 1938, as set in the early years of the Forest Service, is of statistical interest, and apparently can do no harm in its present setting. Let us see what the figures show. Twenty years have elapsed since 1908. We are by that space closer to the bull's-eye and ought to make a better score, yet we should not expect precision in predictions based on the present uncertain and variable elements.

In order to get a clearer understanding of the probabilities, the softwoods and the hardwoods should be considered separately.

Relation of Sawtimber Stand to Net Depletion, 1920

(Million feet B. M., i. e., add 000,000)

<i>Data</i>	<i>Softwoods</i>	<i>Hardwoods</i>	<i>All Woods</i>
Volume of standing forests.....	1,755,218	459,675	2,214,893
Annual depletion	41,058	19,136	60,194
Annual growth (subtracted)....	5,102	4,772	9,874
Net annual depletion.....	35,956	14,364	50,320
Stand ÷ net annual depletion =	49 yrs.	32 yrs.	44 yrs.
Date of exhaustion.....	1969	1952	1964

In 1923 the Senate Select Committee on Reforestation received from western foresters a statement indicating that the softwood stand in the three Pacific states may have been overestimated in 1920 to the extent of 178 billion feet. This difference is equivalent to five years' supply of softwoods, but may have been offset in part by underestimates of other timber, especially southern softwoods. Although the discrepancy is apparently large, it seems better to omit from the present discussion any attempt at correction. Depletion

includes 1920 estimates of damage by fire, insects, and disease, which, if in error, are probably too small. Both this and the asserted overestimate in the Pacific coast states would tend to shorten the remaining period of use of the virgin stand.

The date 1964, for the exhaustion of softwoods and hardwoods combined, adds twenty-six years to the date of 1938 predicted in 1908, with which this is comparable. Again the doom-date is postponed. However, it needs modification in more than one way. It would be very far from the truth to imagine, as was pointed out twenty years ago, that we shall use our 1920 ration of hardwoods until 1952 and our 1920 softwood ration until 1969, and then suddenly become aware that the landscape is swept bare of forest, and that lumber can not be had at any price.

In the first place there is little or no chance that we shall consume all of the stand. The inaccessibility of some timber, the need for some mature timber everywhere as a source of seed, the need for protection forests recently emphasized by the Mississippi floods, and the public demand for recreation forests and National Parks should assure that considerable quantities of sawtimber will be withheld from consumption. On 470 million acres of forest land that reserve could not reasonably be less than 500 billion feet, of which hardwoods might constitute one-fifth. This reserve, indicated on the diagram, would diminish to that extent the available stand on which the preceding estimate was based. The effect would be to move the exhaustion dates to less distant years, that of the hardwood to 1945 and that of the softwood to 1958. The weighted average is 1954. Thus, on the basis of 1920 statistics, even if 500 billion feet should be withheld from consumption, the indications are that the stand will last sixteen years longer than seemed possible twenty years ago.

These dates, however, are mere approximations of the number of years during which we may expect to use as much sawtimber as was consumed in 1920. They may not be accepted literally because the "net depletion" (*i. e.*, annual consumption and destruction minus growth) used in the estimate is decreasing and the decrease of this factor tends to prolong the period of use of the available timber.

For instance, the lumber cut, which constitutes about sixty per cent of the sawtimber consumed, has been decreasing since about 1907. Between 1907 and 1926 the decrease has averaged nearly half a billion feet a year. Growth, on the other hand, which in 1920 added about ten billion feet of sawtimber annually, is increasing as mature forests are cut away, and as more general protection from fire is given. There is reason to believe that growth fifty years hence will be two to three times as much in quantity as was estimated for 1920.

The public mind has been well prepared for forestry during the past 25 years. Its attitude toward forest fires has undergone a great and favorable change. The organizations of the States have developed to a gratifying extent. An appreciable start in the practice of forestry has been made here and there within the great areas of privately

(Continued on page 307)



© R. M. Lamb

The battle of Lake Erie—gallant wooden men-o'-war in deadly combat.

Who Killed Santa Rosa?

Wherein America's First Tree Planting Experiment Is Abandoned—Through Sheer Cussedness, Some Say, While Others Lay It to Politics

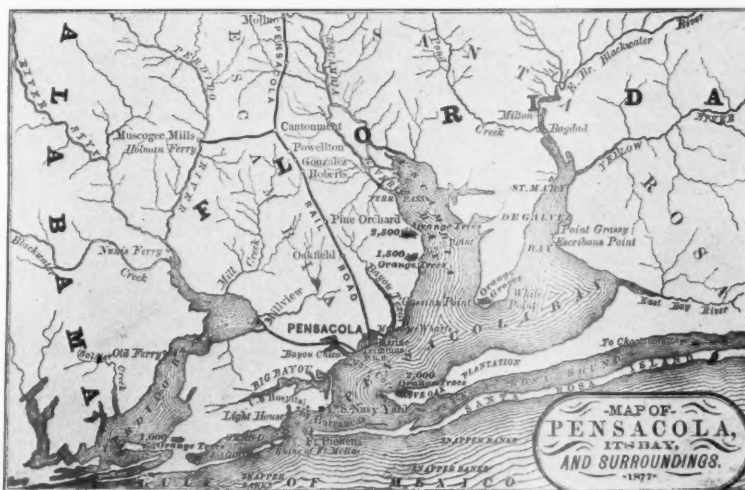
By JENKS CAMERON

ON Jackson Place, in the city of Washington, there stands an old brick mansion in which is housed a well-known organization for the promotion of international peace. From the front windows one can look out over Lafayette Square, and halfway across his eye will be arrested by a sight that, as the producers of he-man literature love to say, will give him pause—a sight little suggestive of international peace or any other sort. For there, sitting astride a prancing charger, and surrounded by a battery of field pieces, a

While more than a hundred thousand young live oak trees flourished on the Government plantation on Santa Rosa peninsula, where acorns had been ordered planted in 1828 by John Quincy Adams for ship timbers, a political war exploded in Congress and the experiment was abandoned. Mr. Cameron, in his concluding article, "Who Killed Santa Rosa?" tells of the tragic, but somewhat humorous death of America's first attempt to grow trees for sail of the line.

tall, gaunt, exceeding military-looking gentleman glares menacingly towards the peace factory, his chapeau doffed in a gesture of grim formality. The suggestion is irresistible; the stronghold of amity is being summoned in due form.

Somehow, though, the process is never completed. The peace folks on Jackson Place keep on mollifying, and the gentleman on horseback keeps on summoning, and the years go by and nothing happens. For the gentleman, you see, is bronze, and so is his horse; and his cannon are full of an-



This interesting old map shows the exact location of the Live Oak plantation at Santa Rosa—that bone of contention which furnished political fuel for the fire of contempt with which the Jacksonians consumed the works of their political predecessors

cient bird nests. He is Clark Mills' conception of Andrew Jackson, our most warlike President, and he has been standing where he is for seventy years; ever since he was cast out of Spanish guns that the fiery Jackson himself had captured at Pensacola—just across the bay from Santa Rosa.

This statue of Andrew Jackson is a striking reminder of things that change and things that remain the same. It is less than a hundred years since that vehement leader of men succeeded John Quincy Adams in the Presidency—March 4, 1829; just a few weeks after operations had begun at Santa Rosa under Henry Marie Brackenridge. Yet when we compare those days to the present, the contrast is so tremendous that a mere century seems utterly inadequate. Today, with Lindbergh's plane droning over Lafayette Square freighted down with Congressmen; today, with glittering limousines humming along hard roads everywhere; this—and the days of Jackson! Sometimes in our sentimental moments, we call those days the good old days. Maybe they were; but I wonder if we'd really have them back if we could? Would we really like to do without bath-tubs? Would we really like to go back to the romantic, but not always sanitary, pump? Would we really like coffee and pistols for two at five A. M.? I wonder.

Ah, yes, the good old days! The days when steamboats got there, provided they didn't explode en route—which they frequently did; the days when inns were famous for food and drink, and infamous for bedbugs; the days when gentlemen proved that they were scholars by copious quotations from the Latin, and scholars proved that they were gentlemen by copious potations from the corn. The days when roads were bogs and streets were quags, and when the statesman, wending his way towards his Madeira

through the Washington dusk, had to look sharp lest he put foot upon a wallowing sow and be catapulted into that which would spell ruin to his broadcloth, his linen, his varnished boots, and his imprecational restraint. Let's have those good old days back by all means!

So far as external things were concerned, there was more than a century of difference between those days and these days; there was an aeon of difference. But with regard to the hearts and minds of men there is another story to tell.

Even as we of today love and hate and scheme and have ambitions and political preferences—so had the men of 1829. Even as we of today think our party contains all the honesty and ability, and the other fellow's party all the rascality and ineptitude—so did the men of 1829. Even as we of today dearly love to hang the dead cat of skulduggery upon that other fellow's party—so did the men of 1829. Even as our political ferocity is intensified by a close decision against us—so was that of the men of 1829. In other words, those days and these days, though very far apart in such things

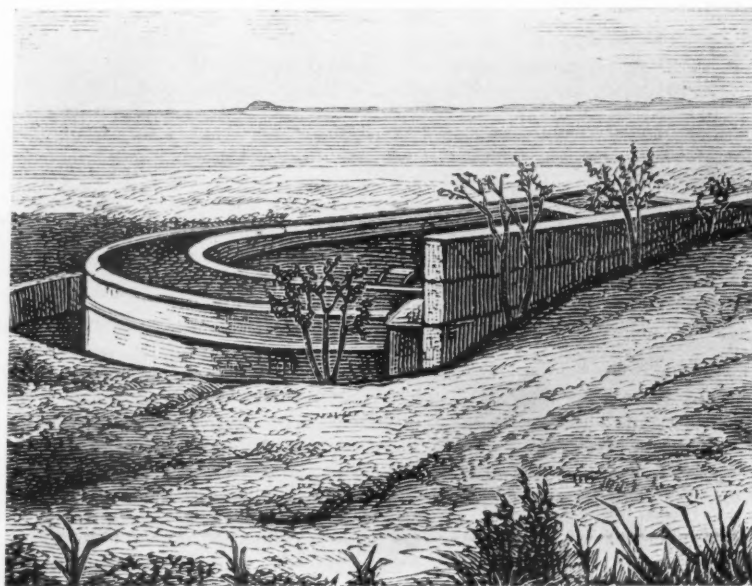
as transportation and sanitation, are plumb together and as one in such things as admiration and reprobation. In stage coach or limousine—human nature is human nature, world without end.

The Jacksonians came into power in 1829 an exultant party, but also a vengeful and vindictive party. They had never forgotten nor forgiven 1824, and no

wonder they had not—it is tough to be ahead in a race and yet be counted out on a technicality. It is just as tough to be ahead in an inconclusive election and then have the deciding power hand the prize to the runner-up. And that is what the House of Representatives did in 1825 when it voted Adams into the Presidency over Jackson.



John Branch, Secretary of the Navy under Jackson, whose activities undoubtedly did more than those of any other one man to "kill" Santa Rosa



The ruins of an old Spanish fort, near Pensacola, as shown in an old wood-cut

So when the Jacksonians found themselves in power four years later beyond question or quibble, it was a foregone conclusion that if they could "hang" anything on their defeated rivals they were not going to let any chivalrous or generous victor squeamishness deter them from doing it. So they began to look around for dead cats, and in Santa Rosa they thought they found one. But whether they did or not, they made it serve the purpose. And they lost precious little time in setting about doing it.

Less than five weeks after General Jackson took the oath of office his Secretary of the Navy began to get querulous about the forestry experiment of ex-President Adams. He issued two orders. One of them sent Commodore John Rodgers, the conqueror of the *Little Belt*, post-haste to Florida to examine the land bought from Colonel White and Judge Brackenridge at Santa Rosa and report upon its value. The other bluntly informed the Judge of the approaching investigation and told him to suspend operations on the plantation until further orders.

A word is in order here about the gentleman who thus so arbitrarily halted the work at Santa Rosa, and so pointedly intimated that he feared the Government had been "stung" in the deal it had made with White and Brackenridge for the purchase of their small holdings on the peninsula for the consolidation of the live oak plantation. His name was John Branch. His home State was North Carolina, where he was a political power, and

whence he had been elected to the United States Senate for two terms, the second of which he had only begun to serve when General Jackson selected him to take charge of naval affairs under his administration.

One thing in connection with Mr. Branch it is important to relate here. When the Adams administration had

gone to Congress for special authorization, in 1828, for the purchase of the White-Brackenridge holdings at Santa Rosa, Mr. Branch, as a Senator, had been in a position to object. But Mr. Branch did not. He heard the explanation as to why the land was wanted. He heard that no additional ap-

propriation would be necessary. He heard what the price was going to be. And he did not open his head. The authorization was given; and President Adams and his naval secretary went ahead with their forestry plans; and Mr. Branch gave no sign that he was one day going to endeavor to "hang" the transaction upon its furtherers. But then, of course, Mr. Branch did not see the opportunity that was going to be his, and his party's, in the year 1829.

As part of this unforeseen opportunity he likewise did not see that Mr. Thomas F. Cornell was going to appear on the scene to help him. Mr. Cornell was a young man who had been employed as a live oak surveyor by Mr. Branch's predecessor, Mr. Southard, and who had advised against the Santa Rosa scheme in general, and the Santa Rosa purchases in particular, in so violent and

"sassy" a manner that Mr. Southard had fired him. Whereupon he went over to the enemy and appeared in Washington with the intelligence that Santa Rosa was a "worthless pine barren," and that the land purchased from the Colonel and the Judge for nine thousand dollars was "not worth nine thousand cents." But Mr. Branch's move with Commodore Rodgers did not



Commodore John Rodgers, whose blunt report on Santa Rosa failed to support the antagonistic attitude of the Secretary of the Navy



Copy of an old wood-cut, showing Pensacola Bay as seen from Central Avenue in the old Navy Yard west of Santa Rosa

pan out well. That bluff and honest sailor, though he had never been in favor of the Pensacola neighborhood as a location for a southern navy yard, submitted a report on Santa Rosa that was, on the whole, favorable to it, and that proved conclusively that, so far as money's worth was concerned, the Government had got "value received."

So Mr. Branch was reluctantly constrained to order the Judge and his overseer to resume operations, an action graphically reflected for us in the entry that Mr. Adams, the then ex-President, made in his diary in January, 1830.

"White says that the plantation of live oaks that I caused to be formed near Pensacola is in an extremely flourishing condition; that Branch, the present Secretary of the Navy, wanted to put it down with the other naval establishments, and sent Commodore Rodgers to make a report; but that the report was so highly favorable to it that it has been suffered to live."

But Mr. Branch did not give up. He merely bided his time and laid his plans for another try. For example, he had Amos Kendall, the fourth auditor of the Treasury, in charge of naval accounts, advise him, in the fall of 1829, that it was questionable if authority existed for the payment of the salaries of the superintendent and overseer of the live oak plantation. Later on he had the same gentleman—who had originated in New Hampshire, gravitated to Kentucky and journalism, and grown to

be probably the most astute politician in the Jacksonian high command—supply him with a memorandum showing that the magnificent sum of \$261.11 had been expended in excess of the \$10,000 authorized in the purchase of the Santa Rosa tracts. It took some hardy bookkeeping to do this, but what's a little thing like accountancy when the opposing party is to be shown up? As a matter of fact, Mr. Kendall stuck in some \$1,200 that belonged somewhere else. Only some \$9,000 had been expended for the land for the live oak

project at Santa Rosa, though \$10,000 had been authorized.

But Mr. Branch now felt that he was in a position to go ahead; and he did. He served notice on Judge Brackenridge, in August, 1830, that the work at Santa Rosa was going to be terminated finally on January 19, 1831, two years to a day after it had been officially commenced. And it was terminated. That date marks the end of Santa Rosa

as a genuine forestal experiment. For some years thereafter, under later secretaries, a little clearing was done under the direction of the naval officers in charge of the Pensacola yard. But the object of it was merely to preserve, as far as possible, the improvement made

under Brackenridge. All work of an experimental nature was given over. No more acorns were planted for observation. No more seedlings were transplanted. Santa Rosa, as a genuine national forest and forest experiment station, ceased to exist when Mr. Branch read its death warrant. He justified that death warrant, or sought to, in his December, 1830, report by saying that the "artificial propagation or culture" of live oak was not



THE AMERICAN FORESTRY ASSOCIATION ANNOUNCES THE WINNERS OF THE BEAR STORY CONTEST FOR FOREST RANGERS

A white man and an Indian—with one gun between them—stand precariously on the edge of a cliff watching a monster of a bear—a killer, who scorned the sagacity of man—lurch at them, his head swinging low. A moment before, while the two men looked on in breathless silence, the bear had killed a mad bull in a struggle of beasts such as few men have ever witnessed. And now, with his hideous jowls savagely thrown apart, and maddened by the smell of his own hot blood, he attacked. The Indian dropped to one knee and took careful aim, while the white man—but let Marion P. Hunt tell it to you in the June issue of AMERICAN FORESTS AND FOREST LIFE as he told it to the Contest Judges to win first prize in The American Forestry Association's Bear Story Contest for Forest Rangers. It is one of those fascinating, almost unbelievable episodes in the daily life of a forest ranger that will thrill alike those who have followed the trail and those who are unaccustomed to the wilds.

From nearly two hundred stories submitted by forest rangers throughout the United States, the Contest Judges awarded the prizes as follows: First prize, "The Killer," by Marion P. Hunt, ranger on the La Sal National Forest, Moab, Utah; second prize, "The Desert Bear," by William M. Mace, ranger on the Fishlake National Forest, Richfield, Utah; third prize, "All Through the Night," by Alfred C. Clayton, ranger on the Washakie National Forest, Dubois, Wyoming.

authorized, nor necessary, in view of the existing forests of natural trees. A few days after the submission of that report Colonel White arose in the House to controvert it, only to discover that the Honorable Mr. Speight, of North Carolina, a political confrere of Mr. Branch, was ready primed to controvert him. No need to go into who had the better of the argument. It did not change matters in the least.

A month after the wind-up at Santa Rosa, on February 20, 1831, Mr. Adams made the following entry in his diary:

(Continued on page 312)



The woods at the cabin where the pigeons nested for several years

Nesting of the Band-Tailed Pigeon

By ALBERT E. STILLMAN

FOR several summers I have lived on the top of Bushnell's Mountain, near Mesa Grande, California, in a cabin surrounded by great white oaks. The trees are alive with birds. Western gnatcatchers fly back and forth, busily searching for insects among the green foliage. California woodpeckers drum noisily, and mourning doves, nesting in the thickets, coo softly as they perch in the tree-tops.

I find the band-tailed, or white-collared pigeon in the woods near the cabin. This bird is said to be quite common in the Southwest, but it is rare in most sections of the Coast Range. It is quite a shy bird, and in this section seems to frequent the lonely oak woods, even homing high on the mountain tops. These are its summer breeding grounds; in the fall it migrates to lower altitudes in order to find a suitable winter climate.

Despite the fact that the band-tailed pigeon breeds in small

numbers in the southern California mountains, little has been published concerning its nesting habits. The nests are difficult to locate, and even more difficult to observe, as the birds are careful not to betray their location. The male does not perch too near it, and the female does not flush from it unless danger threatens.

The first year I occupied the cabin, a pair of band-tailed pigeons frequently visited the oak trees across the ravine. Naturally I began to wonder if the birds were nesting in the near-by oak woods. Then, early in July we saw a female pigeon fly into a manzanita thicket with building material in her bill. Soon her mate came to join her. The birds, I took it, were building their nest in one of the oak trees north of the cabin. If we could locate the nest without frightening the pigeons, it would be comparatively easy to watch them during the period required for incubation, and the rearing of the young.



A youngster of the Band-tailed tribe, whose favorite perch was an old pine cone

We found it a difficult matter to locate the nest. We explored the woods for more than two weeks before it was discovered by mere chance. We were collecting pine cones in a tree about twenty feet high. It happened that my belt caught on a dead limb and, as I gave the limb a shake, a band-tailed pigeon left her nest on the horizontal branch of a black oak, several feet away, and alighted in the top of a

their confidence. One morning I came within ten feet of the tree without causing the mother bird any uneasiness. Two days later I was able to approach within a foot of the tree. The devoted grayish-brown mother was unusually courageous, watching and huddling closer on her egg. The next day I placed a camp chair about three feet from the oak tree and sat down to watch the bird at her nest. The pigeon brooded quietly during the afternoon, and my presence did not seem to bother her in the least. By the end of the week I was able to sit down beside the tree and watch this wild pigeon of the woods brooding serenely on its nest.

In September the baby pigeon was in the nest; its dark skin covered with soft, cottony yellow down, gave it the appearance of a gosling. As I watched, the mother pigeon flew to a pine tree on the other side of the trail. Then, with a loud clapping of wings, she darted to a branch beside her nest. Frequently I saw her stretch herself out so as to obtain a better view of the nestling. Presently she entered the nest and gave the food to her young.

We did not wish to disturb the pigeons, so



At first we had no co-operation from the little fellow in trying to get an attractive picture, for he panted with the intense heat and refused to close his bill

However, a low and repeated imitation of the cry of a hawk brought results, for the nestling turned his eyes toward us for a moment, then wheeled around and shut his long, sharp bill with a snap!

near-by pine tree. A moment later we were looking at our first band-tailed pigeon nest. We never would have seen it had the bird kept her place. The nest was no more than fifteen feet from the ground and about twenty-five feet from the trail.

The pigeons had constructed a rather bulky nest, a mere pile of oak and squaw-bush twigs, with no lining. It was eight inches in diameter while its thickness did not exceed three inches. I estimated that as many as one hundred and fifty twigs went to make up the nest, varying from a sixteenth to a quarter of an inch in diameter.

In the days that followed, I spent a good deal of time in the woods where the pigeons were nesting, trying to win



waited four days before our next visit. On this occasion we went to the clearing soon after sunup and found the pigeon beside her nest almost directly above our heads. The baby bird was strong and active. An adventuresome little fellow he was, wriggling to the nest-edge to be fed. Later, undisturbed by our presence, he huddled down among the small twigs, closed his eyes, and dropped off to sleep.

(Continued on page 300)

From Poverty to Prosperity

Or How a Forest "Working Circle" Works

By E. W. TINKER

ADORNING the wall of a certain Forest Supervisor's office there is a map, noticeable for its blatant colors. It is a well-thumbed and work-scarred diagram. As the years go by and it becomes more grimy with use, this map holds an increasing fascination for me, because its colored patches and cryptic symbols chart the future course of a producing forest. It is a forest management map, on which are delineated working circles, blocks, compartments, and logging chances. A prosaic enough document, you may say, but to me it spells the uplifting of the standards of a considerable number of

people. It represents a foundation upon which the framework of the permanent happiness and prosperity of these people rests, and has so far proven a solid one. Probably to those who deal with it daily and who live close to its application there is little of romance, little of the remarkable, in this work-scarred diagram; but to one viewing it from a distance that presents a perspective, and familiar with the history of its workings, it offers a picture of progress rivalling in its small way big social upheavals that have added to the comfort and well-being of man.

There comes to mind the picture of a village as I first saw it, apparently as old as the hills that surrounded it, and generally with a run-down-at-the-heel appearance. An occasional citizen shifts his scene of action from one shade-offering doorway to another. Now and then a discouraged-looking team, with an equally discouraged-appearing driver, ambles down the street, or a dusty fiver comes to a halt at the

curb. A few houses, some vacant with blank windows, and many weed-grown yards about, complete the picture as it comes back to me.

Add now a change of view and you have another typical scene in the same vicinity as it was not so many years ago.



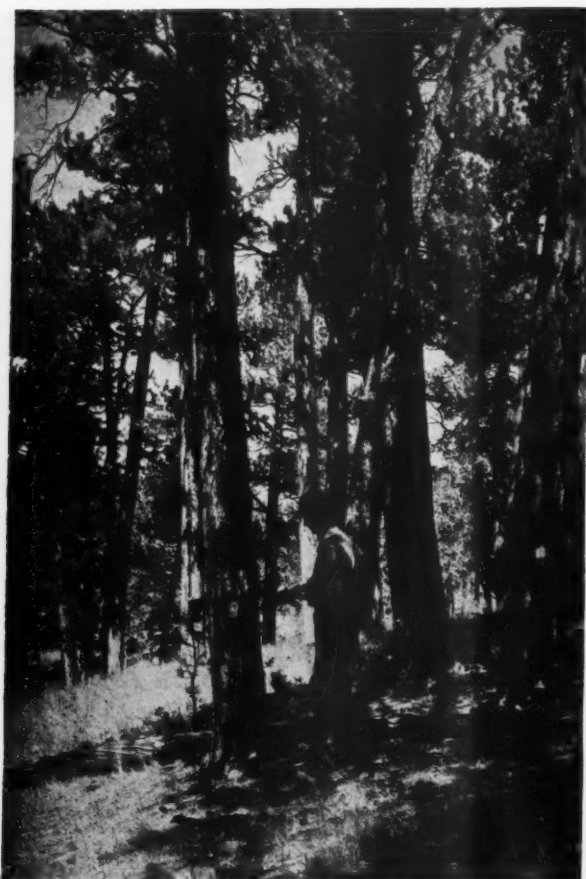
Once part of a thrifty farm—now abandoned land. The forest is rapidly reclaiming its own, and out of this poverty will come prosperity through a wealth of trees

A tumbled-down farmhouse, unadorned by paint, a few pieces of rusting machinery in the yard, a small partially cultivated piece of ground along the creek, and a scattered wood pile. Across the dusty road a little country school of the kind that one instinctively knows carries the heavy odor of dust within, with the

usual sparse equipment and a room garnished by dusty decorations of faded leaves, pine cones, and paper trimmings, all dimly to be seen by the scant light that filters through the accumulation of years encrusted on the windows.

Surrounding village, farm, and school stretch the miles of a National Forest, its timbered slopes broken only by an occasional ancient fire scar, or creek, with its bottom land subject to sporadic farming. Poverty in a wealth of wood. Not the poverty of the city with its keen-edged competition for survival, but the more insidious poverty of the backwoods with its high mortality, lack of education, and slothful living.

As customary in the play, several years have elapsed—in fact about six—bringing us down to date; there is the same village, but hard to recognize; some new houses going up; evidence of fresh paint; men moving about the street as though with a purpose; numerous teams and trucks, some



Wealth of the woods. The Forest Ranger is marking ripe trees to be harvested—just part of the crop which covers the 109,838 acres of the Harney National Forest

piled high with lumber or supplies. Passing out into the hills over an excellent road, we hear the occasional sound of a busy sawmill; we pass a consolidated school bus taking fifteen or twenty children to a well-ordered and sanitary school. Many of the old farms have been abandoned, but those that still are occupied show evidence of industry and prosperity. On a Saturday night the village street is lined with cars, and some of the modest luxuries of life are dealt in.

These scenes are not imaginary. They are real life, and the transformation is one that has actually taken place in the Custer working circle of the Harney National Forest in South Dakota. Perhaps, after all, the growth of the wood-using industry, which has wrought this change, would have come without that gaudy management plan map on the wall of the Forest Supervisor's office. At any rate, that map and a few related tabulations came first, and with their coming established a foundation of permanency and sureness of growth.

It is an interesting but simple document, that plan. It covers an area known as a working circle, the boundaries of which are controlled by topography and accessibility to a center of population. It is built around a community now

dependent for its economic existence upon timber operations, as it at one time depended upon mining long since abandoned. It states there are 109,838 acres of ripe timber to be cut within the area, and that the area is to be cut over in a thirty-five-year period, when the first acres harvested will be ready for another cutting with a greater volume than the original. Each tree that is taken out must be selected by a carefully trained forester; brush must be piled and burned, and all diseased trees removed. Logging must be done without destroying young growth. The plan provides for an annual and increasing cut. The dependent community is assured of a permanent life and increasing prosperity. I have examined many thousands of acres cut over under the marking rules specified in this plan and found the forest left more beautiful than the original stand. Recreation seekers will always be attracted to this region, and it should stand a monument to foresight and a plan.

Does it pay? On examination of the record, we find the cutting operations are now bringing to Uncle Sam and the local political units \$50,000 to \$60,000 a year in direct returns and several hundred thousand to the people in the form of compensation for manufactured products. It deals with staggering figures when the future cuts are predicted and yet



Close utilization is required. In this case it couldn't have been much closer without grubbing out the stump. The purchaser has learned that it pays to harvest portions of the tree that formerly were left in the woods



This isn't a puzzle, but try to find the stumps on this area lumbered by Forest Service methods. Also note the orderly disposal of the slash—tops trimmed and brush piled for burning. The area will be ready to cut again in thirty-five years. Altogether it is rather a rosy picture of the future, reflecting lessened taxes, better schools and permanent employment

is almost puritanical in its conservatism in estimating the immediate future. One working circle gives a cut about as follows: First cutting cycle, 7,000,000 board feet; second cutting cycle, 12,000,000 board feet; third cutting cycle, 16,000,000 board feet. Rather a rosy picture of the future, but one painted on a canvas of facts. It carries with it lessened taxes, better schools, employment, and healthy American standards of living.

A region of high fire hazard, every citizen has become a warden because of a realization of the value of trees and what a permanent forest means to him. There has grown up an appreciation of the value of a forest as one of the greatest assets to the community, with the result that destructive fires have become few and far between.

Perhaps a discussion of the technical basis for that gaudy map and its tabulations would be more in order coming from a forester, but it is well sometimes even for a technician to light his pipe and reflect on some of the human sides of his technical practices. I have described an actual case as I have known it. Perhaps it has been adorned unduly, but even divesting it of all trimmings it still represents what has been done by forestry practice in one locality and what no doubt can and will be done in many others. With reforestation and plans the same evolution can bring activity to the sand plains of the Lake States and the cut-over stretches of the South, all contributing to individual betterment, to the welfare of communities, and to supplying a vital necessity to a nation.

A Memorial Gift

THE ASSOCIATION has received from Mrs. William Simes, of Boston, Massachusetts, a check for four thousand dollars—a contribution to its Endowment Fund.

This richly generous gift is made to honor the memory of her husband, the late William Simes, of Boston, and comes in the name of his widow and daughters. Mr. Simes was a great lover of trees and long a member of The American Forestry Association, to the activities of which he gave unfailing support during his lifetime. His family has chosen a distinctive and appropriate way to memorialize him through this contribution to the permanent fund of the national organization devoted to the conservation and extension through wise use of the forests of the United States.

The Board of Directors is deeply grateful to Mrs. Simes and her daughters for this substantial expression of a continuing interest in all that the Association stands for.

The Buried Forests of England's Fenland

Will the Age-old Mystery of Their Origin and Destruction Ever be Solved?

By MAX H. MASON

With Photographs by Starr & Rignall

VOLUMES have been written about the world's buried cities of romance, as well as those of sober history, but the full story of the buried forests of England's Fenland has yet to be compiled.

These forests, composed principally of giant oaks, some over 130 feet in length, extend in an unbroken circle round Ely, embracing an area of roughly 1,400 square miles; and the remarkable fact about the trees is that their wood is as sound today as it was when they crashed to earth, thousands of years ago.

What has preserved them in this condition? What remarkable natural chemistry has preserved the kernel in the hazel nut, the resin and even its pungent aroma in the pine, each unchanged after thousands of years' burial in peat or stagnant water? One might as well ask how the buried forests got under the soil of the Fens, when they lived, and what destroyed them. Geologists who have made the Cambridgeshire Fens a life-long study assert that the lower of the buried forests, of which there are five at least, lying on successive strata of peat and clay, is over seventy thousand years old. That is all they will hazard, and, of course, a few thousand years either way does not matter.

But great changes in the surface of the Fens have been taking place recently and may, in the near future, enable scientists to answer some of the many puzzles the buried forests present. Modern and continuous drainage has, for instance, had the effect of drying

the peat soil which covers the Fenland like a black pall and of reducing it to fine dust. Whirled away by every wind that blows, the top surface of the land is fast disappearing, leaving thousands of trees of the uppermost forest exposed and lying bare and gaunt against the monotonously flat background of sedge-fringed dykes.

A visit to this graveyard of stricken trees produces a curious mental effect. One marvels that Nature is so magnificent in her fashioning and yet sorrows that she is so destructive. Every one of these fallen forest monsters is garbed in funeral black, the result of thousands of years immersion in sooty peat and stagnant water. Field after field contains tree-trunks, some overlapping each other, each throwing out stumped and blackened branches, until the whole region resembles a vast mud-flat, strewn with the timbers of countless wrecks.

One's imagination makes an effort to reconstruct the scene as it appeared æons ago, when these trees stood in all the splendor of a primeval forest, the happy hunting ground of Stone-age man and the home of prehistoric monsters whose remains—some wonderfully well preserved—have been discovered in the clay beneath the peat.

These buried forests must have been known to the dwellers in the Fens from time immemorial, and there is every evidence to show that their wood, especially that of the oaks and pines, was highly prized. It has been employed in the



What great catastrophe laid low these giant trees of Britain? Buried in the Fens for thousands of years, these fallen forest monarchs are perfectly preserved. In the "Fen Oak" method of reclamation, a trench is first dug with a spade around the trunk to raise it

construction of ancient bridges; in reinforcing dyke walls, and it is split into lengths for fencing and hedge repairing.

The whole of the interior framework of the Lantern Tower of Ely Cathedral—an achievement that of its kind is unique in the world's architecture—is fashioned of great beams and stays hewn out of immense Fen oaks. The size of some of these may be gathered from the fact that eight of the beams are ninety feet long and four feet thick. There is no tree growing in Britain today that could produce timber of such magnitude.

Although many a plough has been broken and many a ploughman seriously injured by the ploughs coming in contact with a buried oak, the farmers and smallholders, even the ploughmen themselves, still continue to regard the trees with a friendly eye; for when the trunks are split with wedges and sawn into sections they provide excellent firewood.

Where the trees are not "high and dry" above the soil, the "Fen Oaking" method of reclamation is employed. This consists of trenching the trunks with spades and sawing them into sections, each of which is pulled from its resting place by six or eight horse teams. The sections are then split with wedges and conveyed in wagons to the saw-mills. There is still to be heard in the Fens an ancient "Fen Oaking" ditty, which has for its chorus:

"The winter's past;
The corn's all threshed
And safely in the bin.
Then yoke your teams, my merry lads,
And haul the 'Fen Oaks' in."

The pines are in more demand for fuel purposes than the oaks, for, when split and sawn up, they are found to contain quantities of resin—resin that has been imprisoned in the wood for perhaps fifty or seventy thousand years, and yet is no different today from its modern equivalent!

This, and the fact that every tree that is found in the buried forests is as sound as the best seasoned timber, will at once set readers asking why some astute timber merchant or furniture dealer does not turn the oaks and pines into a business proposition, and secure a cheap and practically inexhaustible supply of wood.

"Isn't it better to use these fine oaks for panelling or modern 'antique' furniture than allow them to boil a farmer's stew-pot?" is a question I am often asked when taking some American visitor round the Fens. It certainly would be more sensible if it could be done, but the truth is that there is an acid permeating each tree which has the effect of "peeling" the fiber after the wood has been exposed to the air for

a few months. Chemists who have analyzed this acid know what it is, and assert that if the trees were "pickled" in a certain chemical, for two or three weeks, the "peeling" process would not occur.

Personally, I am of the opinion that it only needs a man with a big imagination and small capital to turn the buried forests into a fortune, for seasoned oak in this country today commands handsome prices. The acid is certainly in the trees but the remedy for its expulsion, or neutralization, is known. Add to this that the farmers will make a present of a few thousand 80-foot long fen oaks to anyone who cares to remove them from his land, and it would seem that we English people are still closely related to Rip van Winkle!

If the "pickling" process proved a success, and the timber were put on the

market there is no doubt that it would command a very high price, for it is magnificently "faced" with unusually black and rippling grain.

Two of the largest trees ever discovered in the Fens were unearthed in 1925 in the West Fen district. The first made its presence felt when a two-horsed plough was overturned, and smashed in half, by coming in contact with the butt end of the trunk, while the ploughman was seriously injured by a blow from the plough handle. Preparations were made to remove the tree, which was found to be an oak measuring 132 feet in length. It was sawn into sections, dragged from the peat by a team of eight horses, and split with wedges into six foot lengths. These were used as fencing posts, of which there were 170. Unfortunately the circumference of the oak was not measured. For about 40 feet from the root end it was perfectly straight, without a knot or blemish of any kind. It answered to each stroke of the mallet on the wedges, and it was good to see it rend and hear it "talking", crackling and yielding, not without protest, to the terrific



When the exact location of one of these stricken giant trees is determined, a wisp of straw is fastened there to mark the spot for the workers who follow after. Some of the buried trees have withstood even the force of traction engines, employed to drag them from the peat

blows. Leaves and small branches were visible when it was first unearthed, but after being exposed to the weather for a short time they crumbled into dust. This tree took eight men five days to saw into sections and render it ready for carting.

The second tree was discovered near by and was 90 feet long, though a portion of the top end had been broken away.



Having been dragged from their Fenland graves, the huge trunks are split up with wedges and carried off in wagons to the sawmills

From it 140 posts were made. Round the centre of this oak were deep cuts occasioned by strong chains and wire ropes which had, the previous year, been made fast and coupled to a traction engine, in an endeavour to drag it from the peat. The attempt had been a complete failure, however, both chains and ropes having been broken without moving the obstinate forest king an inch.

That whole forests went down together cannot be disputed, for in Woodwalton Fen the buried trees of the uppermost forest lie so closely together that they present a spectacle more reminiscent of a lumber yard than a piece of agricultural land. There is no break in their continuity, even the beds of the rivers and dykes being littered with them.

When the present owner of the Manor Farm, at Woodwalton, took over that property in 1901, he decided that the buried trees must be got rid of. He, therefore, set men to work to dig around them, to about two feet below the surface, preparatory to getting them out. Thousands of these great trees were cleared in 1902, and thousands more in 1903. The same thing has continued each year, and yet thousands more remain. In 1908, 30 men were engaged for a number of weeks in clearing and raising tree trunks. About 60 acres were cleared and thousands of oaks and pines were carted and stacked in piles, and put at the disposal of anyone for firing purposes. Though the whole of the inhabitants of the neighborhood have been continuously carting logs from

these heaps there is still a further six years' supply!

In Connington Fen, oaks are not so numerous, but yews and Scotch pines are plentiful. The yews, when sawn through, emit an odor that is very like cedar wood. There are many other kinds of trees lying on, and under the surface of the Fens, among them being elm, birch, hazel, alder, willow and sallow. The birches are only found in the vicinity of Billingham, and their silvery paper-like bark is absolutely intact, despite their long burial in the peat. Some of the firs are of majestic proportions, and their wood is still white and contains a yellow resin. Everyone who inspects the buried trees is impressed by the immensely thick bark that covers them, an indication of a very cold climate.

"Ah", says Mr. Knowall, "these forests were killed when Europe was in the grip of an ice age."

Were they? Lying at the roots of some of the trees are the petrified remains of the sabre-toothed tiger, the rhinoceros, and other animals which could only have lived in a tropical, or semi-tropical climate, while palms and other similar vegetation have been unearthed in a perfect state of preservation.

That there have been great cosmical changes in the Fens is indisputable, for the forces which were able to destroy one of these immense forests, bury it in clay and peat, raise another forest in its place, and then repeat the whole process over and over again, can hardly be regarded as insignificant.



In the work of removal, powerful field horses are often used. The tree trunk is pulled out of the trench by a chain attaching it to the cart

And yet, with the exception of the buried forests, there is not the slightest surface indication that such cataclysmic changes have occurred. The whole countryside is monotonously flat and uninteresting and in wintertime the endless expanse of black soil, so black that a "dressing" of soot on its surface is indistinguishable, leaves an impression that one is following in the wake of an all-consuming fire. There

are few living trees to break the depressingly straight line of the horizon, and not a hedge is to be seen. Silent stagnant pools are met with, here and there, from which branch off artificial drainage cuttings, full to the brim with brackish water, in which nothing but weed and sedge will live.

An occasional farm house, with delapidated out-buildings, or a deserted windmill, throwing its tattered sails aloft in the air, make a hopeless effort to soften the ugliness of this waste, so truly nicknamed "The Desolate Land." Its surface has nothing of beauty, nothing of interest, if we except the exposed Fen oaks, but out of the peat and clay have been taken prehistoric, Celtic, Saxon and Roman remains which, for variety and excellence of workmanship, cannot be surpassed anywhere in Europe. Within five miles of Ely, for instance, have been discovered bronze Saxon shields, Roman statuary, and thousands of stone-age relics, the most interesting of which is the skull of an immense ox-like mammal. Wedged fast in the forehead is a hand-chipped stone ax-head, having a portion of the shaft adhering—surely conclusive proof, if any were needed, of the method by which Neolithic man carried out the inexorable law of "the survival of the fittest."

There is no doubt that we who live in the Fens are existing in an atmosphere heavy with the noxious fumes of masses of decaying vegetation. Our houses are built on foundations—if one may be permitted to use the word—of rotting sedge and rank turf, for it is not many years ago that the whole of this great plain was an inland sea, with small inhabited islands, of which Ely was the largest, dotted about its surface. A systematic drainage system in time made itself felt, and gradually tracts of land were isolated and left safe from inundation. Ultimately the whole of the Fens was reclaimed and cultivated, but the rotting vegetation that remains is still throwing off noxious gases that pollute the air and cause Fen miasma, from which few are immune.

Forty years ago a poppy antidote was in great favour with the Fen folk. It was made from the white poppy, acres of which were grown for that purpose. Every man, woman and child living in the Fens was dosed with this "poppy tonic," as it was familiarly named, year in and year out, so that the miasma might be warded off. It was used for all infantile complaints and, in short, no matter from what illness a person suffered the "tonic" was the remedy. Its

only drawback appears to have been that it made those who took it very sleepy, which is hardly to be wondered at considering that this wonderful "poppy tonic" has since been discovered to have been nothing more or less than pure, unadulterated opium!

To this day there is a farm called Poppy Farm where, 40 years ago, 500 acres of poppies were grown annually, in order that the Fen people should not be deprived of their "poppy tonic." One has only to glance at the wizened faces and stunted bodies of some of the older inhabitants of the Fens to see what effect a course of opium taking has on a human being.

Had the practice been continued it is certain that this insidious drug would have slowly sapped the life-blood of the community and, finally, the Fen dwellers would have "gone down" before its onslaught.

Curiously enough there is here a striking illustration of the insidious cause which, in all probability destroyed another family of Fen denizens—the buried forests. Substitute *peat for opium* and the analogy is complete.

Let us apply it. A curious point about the buried forests is that all the trees lie with their heads facing northeast, which would suggest that they went crashing down before the onslaughts of successive primeval whirlwinds. But an examination of the base of the trees leads one to the belief that their destruction was not quite so spectacular or dramatic. Each tree, without exception, is broken off at about three feet from the former ground level. If that height is com-

pared with the thickness of the existing peat it is obvious that the peat once stood at that height. Is it not probable, then, that the growing peat of far-distant ages gradually crept up the trunks of these forest giants, keeping them constantly cold? The trees would die, their trunks rotting at the surface of the peat, and finally they would fall before the prevalent southwest winds.

So enshrouded in mystery is this phenomenon of the buried forests that hypothesis, quite incapable of proof, is the only method that can be employed in attempting to answer any of these riddles, having their origin in the dawn of the world's history. Perhaps science will eventually wrest the whole secret from Dame Nature and thus be able to give us both the romance and sober history of the vast buried forests of England's Fenland.



WILD VIOLETS

In a place I know
A purple sea
Breaks at the roots
Of an old oak tree.

A sea where dreams
Embark to run
White-sailed and swift
As a galleon.

If ever your heart
Turns voyageur—
And only then—
I will take you there.

—ETHEL ROMIG FULLER

The Home Builder Conserves

One-third of Our Wood Waste in Home Building May Be Saved by Close Utilization

By ALDO LEOPOLD

IT has been known for years that our processes for converting forest trees into houses, furniture, implements, newspapers and a thousand other necessary wooden products were wasteful, but nobody knew, for the country as a whole, just how wasteful or just why. But the Forest Products Laboratory of the United States Forest Service, which has been working since 1910 on the more economical utilization of forests, recently concluded that after two decades of study and research it was prepared not only to estimate pretty closely the total amount of wood lost under present practices, but to tell the nation how a substantial fraction of the loss might be averted at a profit.

The Laboratory's estimate is that two-thirds of the total wood cut each year from our forests is lost in the process of converting trees into wooden products. It further estimates that at least one-third of this loss is unnecessary and could be avoided if the forest-using industries would adopt the methods of

waste prevention which the most progressive firms and individuals have tried out and found commercially feasible.

Good wood costs good money. Why then should a competitive industry need to be urged to adopt methods of preventing wood waste already found to be feasible and often profitable? Why do they not seize upon these improved methods of their own accord? Every American conservationist should note and ponder well the answer to this question.

The improved methods are not automatically adopted and used because they are not known, or they require more skill and equipment than the old methods. Also they require

better organization of the producers and markets before the individual firm can take advantage of them. Another point is that the prejudices and customs of the consuming public prevent the sale of the resulting product.

The American public for many years has been abusing the wasteful lumberman. A public which lives in wooden houses should be careful about throwing stones at lumbermen, even wasteful ones, until it has learned how its own arbitrary demands as to kinds and qualities of lumber, help cause the waste which it decries. If all the housewives of the United States should suddenly decline to buy anything but wish-bone cuts of chicken, the poultrymen of the country would be in the same boat as many lumbermen are today.

A householder, for instance, is adding a room to his dwelling. He is buying the joists for the floor. He wants a good job and good material, so he may insist on practically clear 2" x 8" pine, even though he could get knotty pine for twenty-



A big leak in the National timber supply would be stopped if home builders applied preservative treatment to wood exposed to excessive dampness and severe weather conditions. Treatment with a good preservative will double or treble the durability of such wood, and for slight additional cost to the builder

five to thirty-five per cent less. Now, pine trees produce clear and knotty material in the ratio of about one to three, whereas the demand, as measured by price, is in inverse ratio. Consequently large quantities of knotty material are left without an adequate market, and thus tend to be directly or indirectly wasted. In some uses practically clear material is of course necessary, but in the case of the householder and his floor joists for a small room, clear material is unnecessary, and therefore wasteful. The reason why clear material is unnecessary is that the number and kind of joists put under a house floor is nearly always in excess of what is required for strength. Enough additional

joists are put in to give a high *stiffness*, or ability to resist deflection, with its accompanying vibrations and squeaks. Research has shown that a knotty joist, while not as strong, is practically as stiff as a clear one. Therefore, clear joists in this case represent an unnecessary excess of strength, and help to induce a waste of forest.

It may be unreasonable to hope that every householder in the United States can be taught that knotty joists are as stiff as clear ones, and therefore just as good for small houses. But it ought to be possible to teach it to the architects, contractors and engineers who deal daily in such matters and who write the specifications for the bulk of lumber purchases.

Let us now assume that the same householder is buying the lumber for his interior trim, which is to be painted. The dealer offers him his choice of white pine or white fir. He has heard somewhere, somehow, that white fir is poor lumber. So he cheerfully pays extra money for the pine.

Is his choice a wise one? Not from the standpoint of conservation. White fir is perfectly good for interior trim. In strength qualities it is equal to sugar pine, and except in toughness it is equal to spruce. By refusing to buy white fir for the purposes for which it is suited, the average consumer unconsciously contributes to the huge waste of so-called "inferior species," and hastens the day when lumber will soar out of reach of the average citizen's pocketbook.

Again, suppose that our householder is buying siding for the exterior walls of his building. He declines to accept certain material because it contains blue sap-stain. He is afraid this blue stain represents the initial stages of decay.

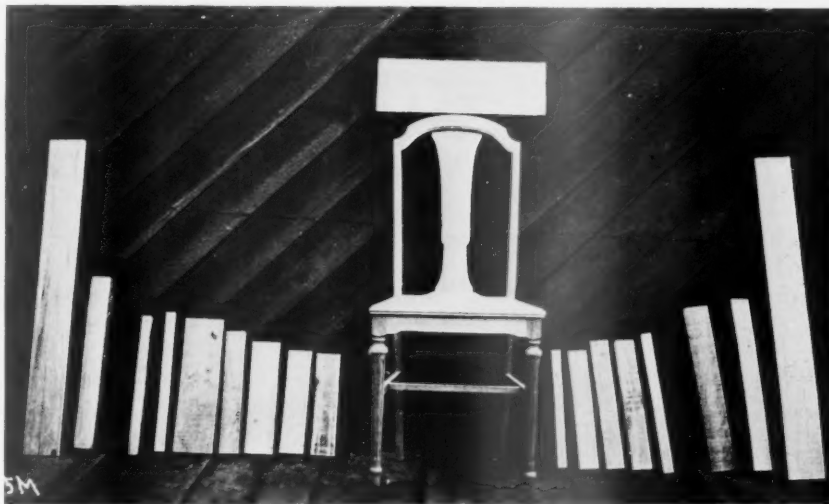
As a matter of fact, research has shown that blue-stain is not decay, and that it does not affect the strength or paint-holding qualities of the board. Nevertheless, millions of feet of perfectly usable lumber are "de-graded" because of prejudice against blue-stain. At the same time our householder may be unknowingly accepting sills infected with real decay, and thus, because of the greater exposure of the sills to dampness, be shortening the life of his building by many years.

The long and short of the matter is that forest conservation depends in part on intelligent consumption, as well as intelligent production of lumber. Intelligent lumber consumption depends on overcoming misinformation and prejudice, of which the foregoing are examples, and supplanting it with scientific information and a real understanding of the properties of wood. The ultimate consumer probably has too many other things to think

about to acquire more than a smattering of such matters, but he is entitled to better advice than he usually gets from the retailer who sells him lumber. Our industrial functions are becoming highly specialized. There are any number of retailers who have never seen a sawmill, who do not know



It is urged that such pieces of timber as these, just mill waste, be used for the manufacture of small articles, such as chair parts, in the interest of conserving our wood supply



This shows the small pieces that go to make a chair and which could be as readily cut at the sawmill from low grade boards, slabs and edgings, and a very definite saving effected in releasing big boards for uses where long or wide pieces are actually necessary

the forest trees from which their lumber is cut, and who are far from posted on the utilization problems bearing on forest conservation. This may not be their fault, but to acquire a real understanding of such matters would redound to the advantage of a retail lumber dealer. There is still another category of wood waste to which the ultimate consumer indirectly contributes, but which could be more quickly eliminated by an intelligent interest on his part.

Take, for instance, our universal insistence on clear hard-

woods for furniture and interior woodwork. A sound knot is today absolutely taboo on the face of a drawer or a base-board or a window casing. Contrast this with the attitude of the craftsmen who built the hand-made furniture of colonial times. A sound, tight knot on a drawer face worried them not at all—in fact, I have seen wonderful old walnut dressers where they actually seemed to prefer knotty pieces because of their ornamental effect. Consider this, and the fact that the greater part of our enormous hardwood waste occurs in the process of trimming out knots. Is it too much to hope that fashion may some day lift the ban against sound knots in places where they enhance the beauty of the wood and do not injure strength?

One of the biggest leaks in National timber supply occurs in connection with the manufacture of articles requiring small pieces of wood, which the manufacturer cuts at his factory from wide long boards, whereas they could just as well be cut at the sawmill from low-grade boards, slabs, edgings, and woods waste. Cutting these small pieces from mill and woods waste would release the wide, long boards for uses where they are really necessary, and thus help to do away with that curse of conservation, the waste-burner. It would be financially profitable to all concerned, and would materially lengthen the life of our remaining forests. These small pieces cut from waste are called "small dimension stock." The principal reason why the manufacture and use of small dimension stock is not more prevalent is that the



If the forest-using industries would all adopt methods of waste prevention which the most progressive firms and individuals have tried and found commercially feasible, one-third of our National wood wastes would be prevented

sizes and kinds are not sufficiently standardized—an obstacle which could be removed by better organized trade practices. The ultimate consumer interested in forest conservation can aid the cause materially by patronizing the firms which sell goods made from such stock, and which are doing their part, through trade associations and otherwise, in extending its use.

Another big leak in the National timber supply is in the still widespread failure to apply preservative treatments to wood used in contact with soil or dampness. Railroads, mines, and telephone companies, for instance, use enormous quantities of cross-ties, poles, and other timbers exposed to decay. Treating such timbers with creosote, zinc chloride, or other good preservatives doubles or trebles their durability for a comparatively slight additional cost. If the life of the ties in a mile of railroad track is trebled by preservatives, it follows that the area of forest necessary to grow ties for replacements is reduced to a third of that necessary for unpreserved ties. It means that a given area of forest will grow ties for three times as great a mileage of track where preservatives are used as where they are not used. The thinking conservationist can encourage the practice of preservative treatments by voicing his approval of the railroads that use them. Mines, by the way, are much less progressive than railroads with respect to this matter.

Large wastes result from unscientific drying of wood, through the necessity for discarding or degrading boards which have developed checks, cracks, cupping, or warping

(Continued on page 297)



This sort of stuff will make good table legs but very poor trapeze bars. It is stiff when supporting weight in a vertical position, but weak when loaded horizontally. The moral is to use it where it works best.

Wild Rice

By G. E. MARSHALL

Supervisor, Minnesota National Forest

WILD RICE (*Zizanea palustris*), for many generations one of the principal foods of the Chippewa Indians, and in recent years considered a delicacy by the whites, is found in abundance on the Minnesota National Forest, where ideal conditions for its growth exist. Many lakes and sluggish rivers with shallow, mud-bottomed shores abound and here wild rice is at its best.

Roughly, there are 10,000 acres of wild rice beds on or adjoining this forest. Only a small portion of the crop is gathered and this almost entirely by Indians. Not over 1,000 bushels at the most are harvested even in the best of seasons. The Indians gather only what they wish for themselves, and a small surplus to sell. Neither the abundance of the crop nor an alluring market price will spur them on to a larger harvest.

The rice starts growing as soon as the water becomes warm in the spring and by July

it has reached the surface. It then lies upon the water until it has attained a growth of four to six inches, after which it gradually assumes an upright position. By August first the plant has headed out and by the latter part of August or the first of September it is ready for the harvest. During this period a fairly even stage of water is necessary to insure a good crop. High water will choke its growth, or if the water is suddenly lowered the plant falls over and the grain fails to ripen properly.

When ready for harvesting the rice resembles common oats, though the husks are somewhat larger and not as thick through the center. The kernels are about the diameter of the lead in a pencil and from one-half to three-fourths of an inch long. As the seed falls shortly after it ripens, the time for harvesting is limited. On this Forest and in its immediate vicinity attempts have been made to



Only a small portion of the wild rice crop on the Minnesota National Forest is gathered, and this almost entirely by Indians. The photograph shows an extensive wild rice bed, with timber in the distance. The insert above is of Bowstring Jack, with Mrs. Jack and Ranger Farley—on the job—threshing

gather the rice by specially devised machinery consisting of a square-nosed barge with a paddle wheel in the bow which pulls the heads into the barge and breaks them off. No suitable device for propelling the barge has been found. In harvesting, canoes are used almost entirely, as they can be pushed more easily through the heavy rice. One squaw sits in the stern and paddles or poles and another kneels in the center, facing forward, with a canvas spread in front of her. As the canoe is pushed through the rice she pulls the standing stalks over the rail and beats the grain off with a small stick on to the canvas. Then they return to camp for the parching or drying-out process. This is done by taking an ordinary galvanized iron tub, and placing some rocks about ten inches high under one side, giving the tub a tilted position. A fire is then built under the tub and a few pounds of the damp

rice thrown in. As the rice becomes heated the squaw begins stirring it with a paddle, throwing it up against the high side and allowing it to roll back slowly. During this process the rice becomes parched and takes on quite a smoky flavor.

Then the threshing starts. The younger Indians make a hole in the ground the shape of an inverted cone that will hold about half a bushel. The hole is lined with a heavy clay that bakes hard. After filling it with rice, a pole is pushed to the bottom and rotated so as to catch the grains between the pole and the hard lining—an operation which quickly and thoroughly removes the husks.

The old method, and it is still used by many of the Indians, consists of making the hole about the size of a bushel basket with a round bottom. Two stakes, four feet high, are driven on opposite sides of the hole and a pole nailed across the top of them. When this is ready one of the husky bucks, wearing moccasins, or occasionally barefoot, steps into the hole, holds on to the cross pole for support

and performs a sort of cross between the shimmy and a celebrated Egyptian dance. This method does not break the kernels as does the pole method and results in cleaner rice, at least from the Indian's viewpoint. After the rice has been tramped sufficiently to break the husks it is winnowed in the wind by passing it from one birch bark basket held high to one placed on the ground. The rice is then ready for use.

Formerly, wild rice was used only by the Indians but in late years it has

come into use by the white man as a breakfast food, because of its high food value. This has created a market for it, but the price is necessarily high because of the uncertainty of the bulk of the crop and its isolation from the market.

Wild rice is a great duck food and where it is found good hunting can be depended upon. On account of its attraction for ducks many private game clubs are sowing wild rice to provide feed, and a certain amount of rice is sold in the husk each year for planting purposes, but it is a difficult seed to handle as it must be kept in a moist condition at all times. If allowed to dry out it loses its fertility.



Native Indian women drying and parching wild rice in an iron kettle over the fire. The Indian youngsters, taking advantage of a new experience, insisted on crowding into the picture

Have You Made Reservations for the European Tour?

WITH little more than two months remaining before The American Forestry Association's European Tour party will sail from New York on the "S. S. Stockholm" for one of the rarest opportunities ever offered for outdoor travel abroad, members of the Association and others interested in outdoor life, who are contemplating the trip, are urged to make reservations immediately. This will assure the best steamship accommodations available, and give the Association opportunity to arrange for many little things that will add to the enjoyment of those making the trip.

Remember, the "Stockholm" sails from New York, June 30, and the party will return on the "S. S. Republic," arriving in New York, September 8. The countries to be visited are Sweden, Finland, Germany, Switzerland, and France, with extension tours to Italy, England and Southern France. The price of the tour is \$1,065, which includes ocean passages, European transportation, trips to the battlefields of France, hotels and all other necessary expense. Forestry programs will be carried out by forest officers designated by the Governments visited.

The Association urges that reservations be made immediately, as in the final allotment of steamship accommodations the first applicants are entitled to first consideration. Reservations may be made by the payment of an advance deposit of \$60. A descriptive booklet has been prepared, setting forth the many excellent features of the trip, and may be obtained by writing The American Forestry Association, Lenox Building, Washington, D. C.



The Oregon Fern Man

By RUTH GRAHAM CASE

TWENTY years ago Sam Roake was operating a greenhouse in Oregon City, Oregon, and supplying flowers to neighboring florists. Even in those days he would find himself drawn from the moist heated atmosphere of his glassed-in workshop to the surrounding woods where he could sniff the pungent leaf mold and enjoy the perfection of each delicately modeled fern and the rich glossy green of the Oregon grape. Surely these beauties of the woods would work in well in florists' bouquets. Why not get permission from the lumber company to take some of these ferns and branches of Oregon grape from their tract of virgin timber? For very soon the tract was to be logged-off and all its shy, shade-loving inhabitants exposed to the sun and left to shrivel up and perish before anyone had enjoyed their rare beauty.

His mind full of this idea, Mr. Roake easily secured permission from the lumbermen, who smiled indulgently at the fanciful idea of anything except the splendid Douglas fir being of value in these well-timbered tracts. Then he found, too, that florists were glad to get this fresh greenery, not only for bouquets, but to fill large orders for decorations for big public events and for weddings and receptions.

More and more Mr. Roake found himself making excuses to go into the woods and returning to the greenhouse with lagging steps. Finally he questioned himself as the demand for his Oregon ferns grew, "Why not devote all my time to the work I love?"

It was a momentous decision, for so far no one had ever attempted a business of this kind. Friends advised him not to give up the sure thing he had, but against all protests Mr. Roake moved his family to Castle Rock, Washington, where he could be close to vast areas of uncut timber. First he secured permission from the Weyerhaeuser Lumber Company, the McCormick Lumber Company, and the Silver Lake Railway and Lumber Company to take the ferns and greens from their holdings. Then each day, accompanied by his wife, he would cross the railroad tracks and climb the hill into the region so full of enchantment and beauty for him. At dusk they would return, loaded down with sword ferns, still damp and fresh from their sheltered homes.

The demand for Oregon ferns grew. One florist told another. Judicious advertising brought others, until Mr. Roake was forced to add a steady worker to the pay roll and his wife was honorably retired to a comfortable home. Now there is a staff of twenty-five skilled workers employed all the year round, besides Sam Roake, Jr., who has come into the business with his father.

Early in the morning the workers start out, equipped with sharp knives, and scatter throughout the section of the woods indicated for that day's work. When fifty ferns have been cut, they are tied in a bunch; then another fifty cut. Thus it goes, throughout the day; skilled workmen averaging 250 bunches a day and sometimes reaching over 300 before time to pack up the ferns, throw them across one shoulder and

follow the trail back through the woods to the waiting trucks. The workmen are paid three cents for a bunch of fifty ferns. Since their wage depends on their industry, little supervision is necessary.

A large old barn serves as a warehouse for the greens. Troughs filled with water run along all four sides of the central room in the warehouse, and into these troughs go the bunches of ferns until ready to be shipped. Then they are packed into boxes resembling fruit crates, which are lined with a layer of newspaper and then filled with ferns, fifty bunches to a box. The boxes are stamped, "Oregon Ferns from Sam Roake and Son," and piled into an iced box car with a capacity of 300 boxes. "The ferns are sent all over the United States," said Mr. Roake; and, against all the predictions of my friends, they arrive in good condition even as far away as the Atlantic coast." The level prairie countries of the middle West provide good customers for Mr. Roake. "At Christmas time I get orders for cedar branches from this section of the country," said Mr. Roake, "and I like to feel that those people can sniff the fragrance of the cedar around their rooms and get something of the pleasure I enjoy from whole forests of Christmas trees."

Mr. Roake, who is a slight, wirily built man of over seventy years, has twinkly brown eyes and very evidently likes people as well as trees. "I expect," he continued, "some of those brides for whom the churches are decked out with the long, glossy

branches we cut, would smile if they knew the boys way off in the woods sometimes start whistling the wedding march while they cut the fine, long, huckleberry branches which are so often used for bridal decorations."

There is a splendid feeling between Mr. Roake and his employees, who call him "Dad." Several of them have been with him for as many as fifteen years. In order to retain these loyal workmen all the year around and not be forced to lay them off during the summer, when there are few orders for ferns, Mr. Roake, using keen business acumen, keeps his men gathering moss.

One room in the warehouse is used to store this moss, which is used by florists in great quantities. The moss must be thoroughly dried, since it is sold by the pound and supposedly with no moisture left in to swell its weight. "When people first heard of my business in Oregon ferns," stated Mr. Roake, "they pictured me out robbing the roadsides and public places of their beauties, something I am very much opposed to. The greenery I take is from places few people ever see. And besides, it greenery that is doomed to an early death when logging operations begin."

"Yes, it's a good business," admitted the fern man. And when one figures it up, it seems obvious. The permits from the lumber company cost nothing. The only large item is labor, and that leaves a very nice profit, indeed. For the ferns picked for three cents a bunch are sold for ten cents. Fifty bunches to the box, 300 boxes to the carload, one can see that it doesn't take many carloads to bring prosperity.



SAM ROAKE, OF CASTLE ROCK,
Whose enterprise brought into the
commercial market the woodsy ferns
and rich green of the Oregon grape

THE LURE OF THE OUTDOORS

Old King Winter with his frigid blasts and white mantle of snow has been crowded from the road to make room for the Argonauts of 1928—the hordes of gay and carefree vacationists. The dismal days of winter have given way to the romantic and more alluring days of spring. Throughout North America people are turning to thoughts of travel and outdoor recreation. The June issue of *AMERICAN FORESTS AND FOREST LIFE* will be scintillating with stories and articles covering every phase of outdoor life. National, State and municipal forests and parks, camping, touring, fishing and hiking—the great lure of the outdoors, have been set forth in such a manner as to make this number outstanding.

Sport and Spawn

How the Problem of Keeping Our Streams Stocked with Fish for Fishermen Is Being Solved

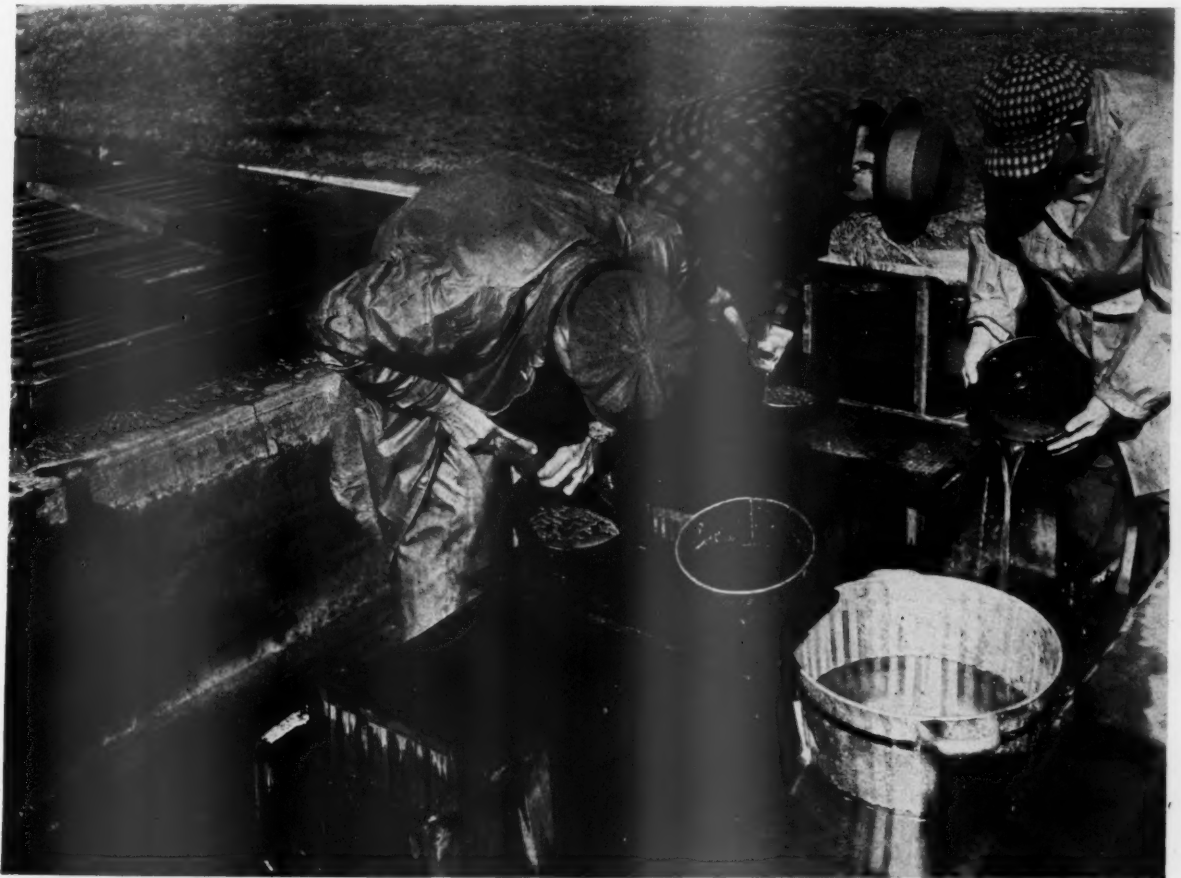
By E. C. FEARNOW

WITH the depletion, or near depletion, of our streams and lakes, productive methods of fish culture have not been developed to compare with the progress made along sane and conservative lines in poultry raising and stock breeding.

The public, it seems, has been impressed that the resources of the water, if not inexhaustible, could be taken care of by the Federal Government and the States, and that the planting of millions of small fish would compensate for any number of large ones taken by anglers and even by seiners and giggers. The public has depended on incubator fish until

there are no fish worth while in many of our waters. The angler has gone the limit by catching the fish that laid the golden egg; so hatcheries all over the country are now vainly searching for brood fish, especially brood bass.

So great are the demands for fish for stocking purposes that it is doubtful whether they will ever be fully met. Fifteen years ago modest requests were made on the Federal Government for four or five cans of fish to be placed in specified bodies of water. In a short time applicants became dissatisfied with these small allotments and began requesting consignments of from fifteen to twenty cans, more than a



At the close of the middle ages Dom Pinchon discovered that eggs of the salmonidae could be fertilized by artificial methods. This discovery was lost but rediscovered by Jacobi, of Westphalia, in 1763. This illustration shows artificial fertilization as practiced today. At the left ripe eggs are being taken from a brook trout. This process is called stripping. Right, expressing milt from male fish on ripe eggs. The eggs are gently stirred to bring them in contact with the fertilizing medium. Water is added and the eggs again agitated to make sure all the eggs are fertilized



Rearing troughs for trout, which have been carefully built on a stream in the coolness of the woods

special attendant traveling in a baggage car could carry. Now, requests are received for carload lots, and even trainloads have been demanded.

Modern methods of fish culture have accomplished a great deal in the artificial fertilization of eggs of the salmonidæ, which include salmons, shad, whitefish, herrings and other valuable species. Billions of fish eggs that would otherwise go to the market with the fish, are annually collected by expert spawn takers of the Government and States, hatched, and the fry liberated.

The salmons of the Pacific coast are maintained almost entirely by artificial methods. These fish are born in fresh water, mature in salt water, and return to fresh water to spawn. It follows that fishing must occur during the spawning season. Were it not that the eggs are saved and fertilized, these species would soon become extinct, as the adults that escape the fishermen die after spawning and their limited progeny would not be sufficient to keep up a normal supply.

While large numbers of cod, haddock, flounder, and other marine species are produced at hatcheries on the east coast of the United States and planted in the Atlantic

Ocean, the results, while of considerable importance, can not be definitely determined, since it is impossible to check up on plants of fish made in the ocean. Such species must be planted before the yolk sac is absorbed in order that they may find in open waters the food that is necessary for their growth.

The artificial fertilization of fish eggs has probably been the means for saving the brook trout, rainbow trout, and other species of the trout family from extinction. Moreover, it has permitted a wide dissemination of various species of the trout family. The fertilized eggs of Loch Leven and brown trouts were shipped to this country from Scotland and Germany, respectively, while eggs of the blackspotted trout of the Rocky Mountains, the rainbow trout and the steelhead salmon have been shipped by the Bureau of Fisheries to many foreign countries.

In addition to the hatcheries operated by the Federal Government and States, there are hundreds of private plants where trout are raised for stocking purposes. Many of these commercial hatcheries are operated on a very efficient basis, not only producing enough eggs to maintain the output desired, but selling fertilized eggs to the government, States, fishing clubs, or to others who may need a supply.



The young trout are reared in pools until they are large enough to interest the angler

Finally, there is the fisheries organization that raises trout in cooperation with the Government or States. The young fish are delivered to the organization early in the spring and are held in rearing troughs, pools, or raceways until they have become three or four inches in length when they are released in streams.

The work of the fish culturist, as the term is generally understood, is to produce the maximum number of small fish; and while a fry looks as large on paper as a four-inch fish, its value under average conditions is comparatively negligible. To produce practical results fish raising will have to be placed on a business basis, and to do this

it will be necessary to merge the fish raiser with the fish conservationist—with the emphasis on the conservationist—for as long as fish conservation is subordinated to the exigencies of fish raising permanent results can not be expected. Under present conditions the exigencies at hatcheries may require that the entire output be planted at a time when the fish are too small to endure the vicissitudes of their new environment.

The desire to produce large numbers of fish without regard to their size or chance of surviving obsesses many fish culturists and frequently retards the effectiveness of their work. In their efforts to exceed previous records they jeopardize their entire output by insisting on premature distributions. Some way should be found to combat this tendency toward large numbers of fry and at the same time give proper consideration to the efforts of the enthusiastic fish culturist by taking into consideration the size of the fish produced. The present classifications, fry, fingerlings, and adults, are very indefinite, as a two-inch fish at one hatchery may not be as valuable as a one-inch fish at another hatchery. Then, there is much guesswork in fixing the average size, for in a majority of cases the classification is based on a few of the largest fish.

The output of a station might be expressed in pounds, but the public would hardly appreciate the value of the product of a large station, as a pound of fish does not sound as big as 1,000 or more. Perhaps a better way would be to compute

the output on the basis of its stocking value under average conditions or by the number of standard containers required to transport it. As a rule 1,000 one-inch fish are carried in the standard six-gallon pail used by the Government, 300 two-inch fish, 150 three-inch fish, or 80 four-inch fish. It

is conceded by many that the stocking value of a pail of fingerling fish and a pail of fry are practically the same, although when extreme care is used in planting and stream conditions are ideal and remain so until the fish have reached the fingerling stage, good results are usually attained with fry.

On the above basis 80,000 four-inch fish would have the same



In such a quiet, shaded pool as this young black bass are reared for stocking purposes

value as 1,000,000 fry. Is there a fish culturist who doubts that 80,000 four-inch trout planted in July or August will produce better results than will 1,000,000 fry, or even one-inch fish, planted in swollen streams in March or early April? It is a matter of record that millions of young trout are planted in the United States during the month of March. Happily the bass, crappie and bream do not spawn until May; so it is impossible to distribute the young until June when the streams are usually in fair condition. This, however, does not mean that bass fry if planted in June has as much stocking value as three and four inch fish.

There is a wide difference of opinion in regard to the value of the various species and sizes of fish for stocking purposes, as much depends on when and how they are planted. This is especially true of the smaller sizes. The present method of classifying fishes places more emphasis on numbers than it does on stocking value, and as it is only the fish that reach the legal size for catching that are of value to the angler, it should be the aim of fish culturists to get the best results possible with the fish that are now produced. After this has been done, it will be time to consider methods of increasing the product.

The results of stocking interior waters can be easily checked up and the value of the work determined. Numerous artificial lakes and ponds constructed within recent years have been stocked with fish and are now producing a

bountiful supply. Fish culture, it appears, is on the verge of a radical change. It is safe to predict that in the future fish conservation will play a more important part than it now does. Within recent years many sportsmen have been forced to the conclusion that while frequent plants are helpful, they alone will not materially increase the supply. It is apparent that too much faith has been placed in the fish culturist, expecting him to accomplish the impossible, and not enough faith in the conservationist. The signs of the times indicate an awakening of the public to the importance of assisting Nature to produce fish in her own way.

Within recent years it has been demonstrated that fish do not require such meticulous care as was first thought, that they will thrive just as well without even a hatchery building. While they are liable to many diseases when raised on a large scale, sanitary precautions, such as frequent cleaning of the troughs or pools, do not seem to act as a preventive. Commercial hatcheries, as a rule, devote very little attention to keeping their trout ponds clean, yet they seem to be fully as successful as those who insist on keeping everything shipshape.

How to keep up the supply of the basses is perplexing every angler who fishes for these ferocious fighters. The

basses are nest builders and the eggs, therefore, can not be taken from the female and then fertilized with the milt of

the male as is done with the eggs of the salmonidæ. As yet no way has been found for supplying bass in small ponds with sufficient living food to prevent them from eating one another. It is very difficult to obtain brood stock of either the large-mouth black bass or the smallmouth black bass, so it will probably be necessary to cultivate these species in streams and lakes where they are indigenous, setting aside refuges, fencing off pounds, and building dams which will cause the flooding of waste land. These sanctuaries will be located at the most favorable places for fish life and the brood will be carefully selected from the fish of the stream. In other words, fish will be raised in streams as animals are raised in fields. Such a system, entailing the selection of proper sites for breeding grounds, the cultivation of live food, and a method of obtaining from the anglers select specimens from their catch, could be put into practical operation at small cost in any stream or lake.

A section of each stream should be made into a fish refuge. The angler is in position to render valuable assistance in carrying into effect a sane and practical system of fish conservation.



Trees of God

*Side by side in numbers lying,
Where the lone bald eagle's flying,
There they lie.*

*Stretching prostrate in their prison,
Where in greatness they had risen,
Mighty monarchs of the forest,
Reaching branches to the sky.*

*Where the storm-king howls and rages,
Scions of the vanished ages,*

*Towering high;
Shrouded in their crystal whiteness,
Verdant in their summer brightness,
Trees of God in hoary grandeur,
All the elements defy.*

*Came the white man, did not falter,
Progress' price on Mammon's altar
Laid he then.*

*Stripped the forests of their glory,
Left gaunt trunks to tell the story
Of the majesty and beauty
Sacrificed to ways of men.*

—ISABEL LIKENS GATES

Lumber Association Names Prize Slogans

*"Certified By Centuries of Service" Receives First National Award In
\$15,000 Slogan-for-Wood Contest*

C"ERTIFIED by Centuries of Service" is the slogan which has been awarded the capital prize of \$5,000 in the \$15,000 slogan-for-wood contest conducted by the National Lumber Manufacturers' Association, Washington, D. C. The author of the prize-winning slogan is James E. Noble, Jr., of Sanatorium, Mississippi, a twenty-four-year-old engineer with a southern telephone company. Six other national prizes, ranging from \$2,000 to \$500, and fifty state and territorial prizes of \$100 each were also awarded. The other grand prize winners, the prizes and their slogans follow: Mrs. Harry Webb Farrington, New York City, \$2,000, "Wood; Use It; Nature Renews It;" Mrs. Maud Burt, Marshalltown, Iowa, \$1,000, "Use It—Nature Renews It"; Matthew Taplinger, Philadelphia, Pennsylvania, \$500, "Wood Answers the Material Question;" Lawrence O. Nichols, Boise, Idaho, \$500, "Build Better With Better Lumber;" C. Stanley Garrison, Indianapolis, Indiana, \$500, "Wood Answers the Material Question;" Lawrence J. Fuka, Madison, Wisconsin, \$500, "There's a Wood for Every Material Problem."

Mr. Noble received his early education at Jackson, Mississippi, later attending the Mississippi Agricultural and Mechanical College, where he received a Bachelor of Science degree in 1923. Since that time he has been an engineer with the Southern Bell Telephone and Telegraph Company. Mrs. Dora Davis Farrington, who was awarded the second grand prize, is a professor in English and journalism at Hunter College, New York City. She is the wife of Harry Webb Farrington, clergyman, lecturer, and poet, and is herself an author and frequent contributor to magazines.

Tragedy and romance, music and education have each played their rôle in the life of Mrs. Maud Ludington Burt,

the wife of an Iowa farmer, who was awarded third prize. Early in life she was orphaned and adopted by the Reverend and Mrs. I. N. Cain, missionaries to Africa. But tragedy stalked a second time, and in massacres at Sierra Leone, West Africa, in 1889, she lost her foster parents. In 1903, Mrs. Burt entered the Conservatory of Music at Leander Clark College, Toledo, Iowa.

Matthew Taplinger is a lawyer practicing in Philadelphia, and attended the University of Pennsylvania; Lawrence O.

Nichols has been associated for ten years with a commercial printing establishment in Boise, Idaho. He was at one time a newspaper man. C. Stanley Garrison is assistant editor of the *United Mine Workers Journal*, and a newspaper man of Indianapolis. He was at one time employed in a hardwood lumber mill. Lawrence J. Fuka, the youngest of the major prize winners, is a senior in the Pharmacy School of the University of Wisconsin, at Madison.

In reaching their decisions the committee of judges found the same difficulty experienced by many of the contestants; that it was hard to find a phrase or sentence that combined and condensed the several most important things that should be said about lumber. The slogans selected were thought best to convey the greatest part of the

message lumbermen have to tell the public, declares the National Lumber Manufacturers Association. It is also pointed out that in addition to the slogans, consideration was given, under the rules of the contest, to the fifty-word letters of explanation accompanying the entries. It is estimated that nearly two million people took an interest in the contest. In addition to the 400,000 slogans submitted, more than half a million requests were received by the Lumber Association for copies of "The Story of Wood," a booklet distributed by the organization during the contest.



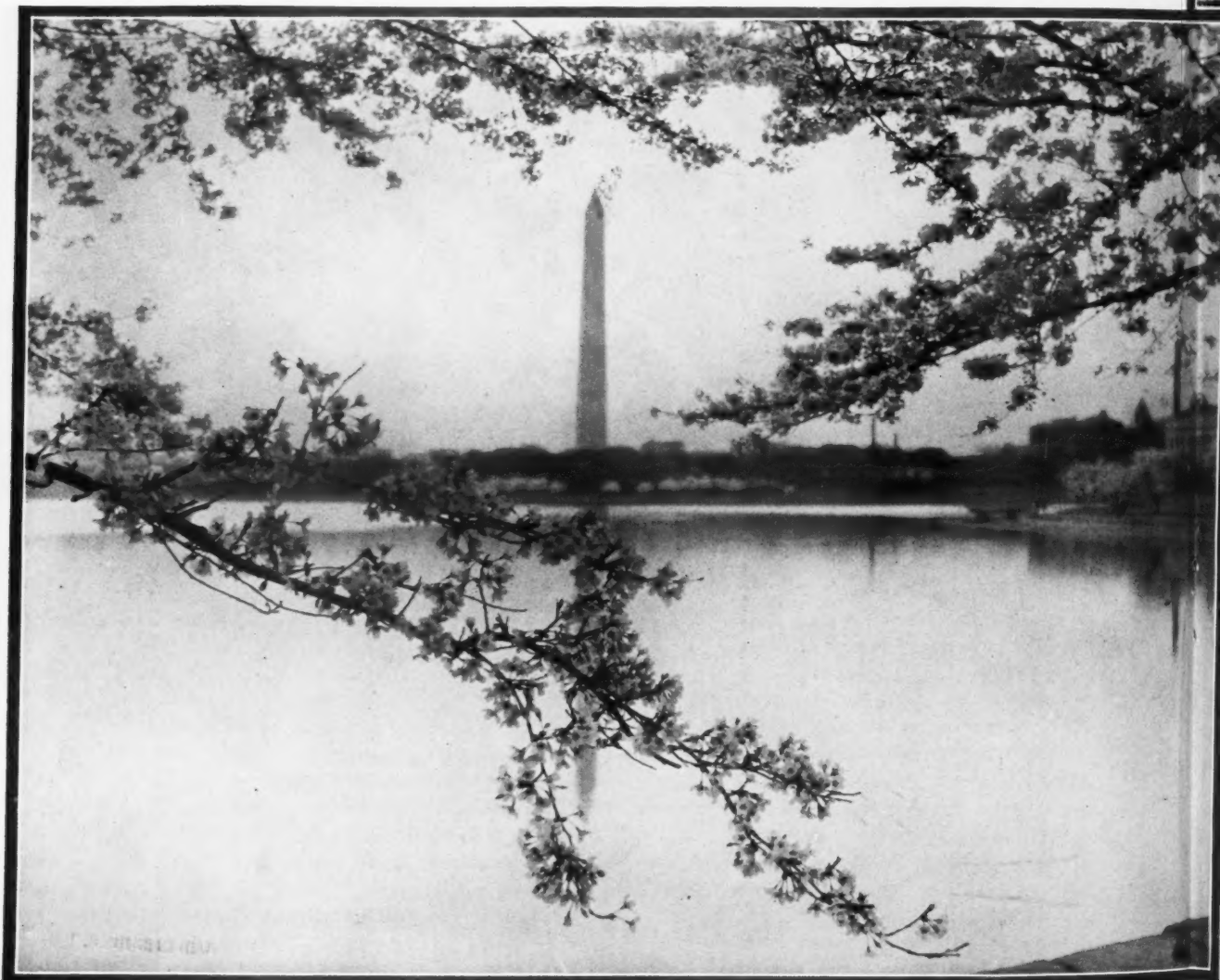
James E. Noble, Jr., of Sanatorium, Mississippi, whose slogan "Certified by Centuries of Service," was awarded the capital prize in the National Lumber Manufacturers Association's slogan-for-wood contest



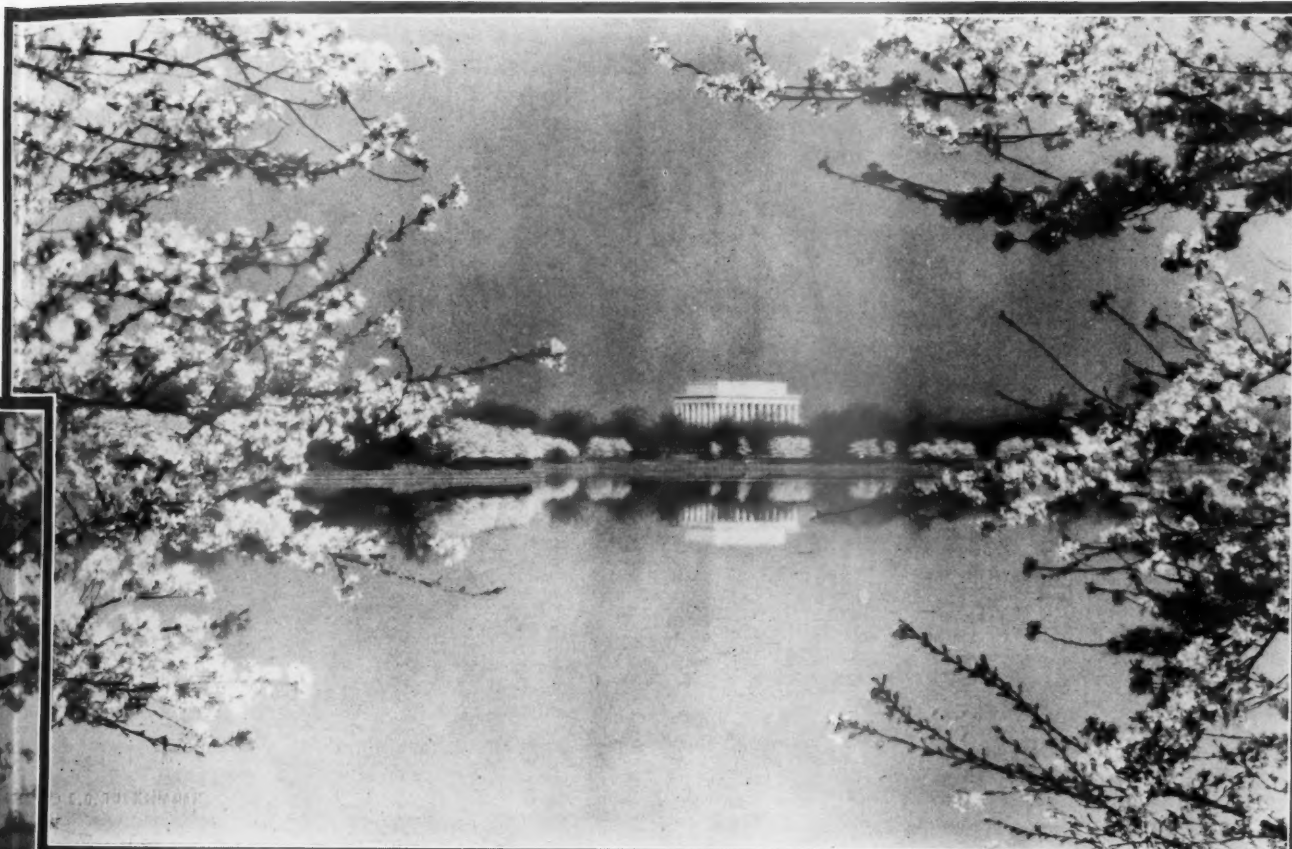
Washington In C

ONCE more the cherry blossoms herald the arrival of Spring at the Nation's Capital. Along the river the great old willows are gowned in delicate green, and the same sweet warm breeze that sways their pliant branches carries the indescribable fragrance of the gay blossoms to delight the thousands who wander afoot—or motor along the miles of driveway—while the cherry trees from the Land of Nippon are in bloom.

Quite at home they have become since they were sent in 1912—an army of beauty 3,000 strong—by the people of Tokyo to the people of the United States, as a token of high esteem. Rooted and firm in American soil, they are constant reminders of friendship between the nations. And they are planted near two of America's greatest shrines—the Washington Monument and the Lincoln Memorial. The great shaft of the Monument, or the gleaming marble of the Memorial, seen through a vista of colorful cherry blossoms is a sight never to be forgotten.



Cherry Blossom Time



Copyright, C. O. Buckingham Company

THERE are twelve varieties represented in the collection, and the colors run from the single white of exquisite fragrance all through the gamut of cream and the palest pink, in single and double-flowering forms, to petals of the deepest rose. The difference in the time of blooming of the trees creates a cycle of blossoming beauty lasting for two to five weeks, depending upon the weather conditions. Last year they bloomed first in March, but cold weather checked and retarded the perfect flowering. This year the first blooming came in early April, the flowering has been incomparable, and there is still much of beauty in the display. Many eastern schools now regulate the annual pilgrimage of their pupils to Washington to coincide with cherry blossom time. A Cherry Blossom fete, in which 300 children of the local schools took part, was witnessed by more than 10,000 spectators. And each year the influx of visitors to the Capital, drawn by this annual festival of flowers, increases in number.

Gay little messengers of good will, the cherry trees from Japan, planted in Washington soil, have established themselves definitely in the hearts and many of the homes of our people, and are now naturalized American citizens.

Friend of Man, ~ The

“Ye who pass by and would raise your hand against me,
hearken ere you harm me. ☞ ☞ ☞

I am the heat of your hearth on the cold winter nights, the friendly shade screening you from the summer sun, and my fruits are refreshing draughts quenching your thirst as you journey on. ☞

I am the beam that holds your house, the board of your table, the bed on which you lie, and the timber that builds your boat.

I am the handle of your hoe, the door of your homestead, the wood of your cradle, and the shell of your coffin. ☞ ☞

I am the bread of kindness and the flower of beauty. ☞

Ye who pass by, listen to my prayer: harm me not.” ☞



HIS beautiful inscription Portugal displays at the entrance of her parks, gardens, and forests. It is a kind of poem, and as such is complete in itself; but its catalogue of services can be indefinitely extended. The tree, with equal truth, might say:

I am an indispensable part of man's life. My roots, bark, leaves, flowers, seeds, nuts, and fruit are used for food, drink, shelter, clothes, fuel, light, medicine and ornament, and yield wax, oil, gum, resin, fiber, dye, sugar, cork, turpentine, alcohol, incense, rubber and timber.

I am the paper that feeds the press and brings you news each morning from the ends of the earth. I yield the fibers which with flax and cotton form the parchments that guarantee your ownership of property and record your laws and constitutions. I make the books wherein are written your memory of history and your knowledge of science, and I bind the sacred pages of your Bibles.

I am the safety and comfort of your automobile, for I give you spokes for its wheels and rubber for its tires. I

am the buoyancy of your airplane, for I make the web of its propeller blades and the strength of its wing supports. My oak yields the cross-ties of your railroads and my lignum vitae the under-water bushing blocks for the shafts of your great steel ships. For none of these has all your science been able to discover an adequate substitute.

I supply logwood, fustic, hypernic and acid to inks and colors; lacquers, copal, shellac and solvents to varnish; flavors, dyes and sugars to confections; perfumes and emollients to cosmetics; camphor, quinine and cocaine to medicine; gutta-percha to telephone and electrical instruments; vegetable ivory to buttons; methyl alcohol to the making of moving picture films; and wax and cements to a thousand uses.

I have served for bridges, boats, fences, wagons, charcoal, gunpowder, tool handles, telegraph poles, gun stocks, pipe bowls, baskets, barrels, boxes, and mosaics. I can be a match stem or a ship mast, a rolling pin or a rood beam, a doorstep or a sanctuary. Wood is the spindle and shuttle of the weaver, the scaffold of the mason, the form of the cement worker, the pattern of the iron founder, the plow handle

Tree Speaks

By
Charles E. Raynal

of the farmer, and the whole trade of the carpenter. And for every substitute invention devises, science discovers new necessities for wood.

To all arts I bring materials, to all inventions I contribute service, direct or indirect; to chemistry I supply indispensable elements, and I myself am a science in my own name and by my own right. I am the painter's tools and the sheen of his picture. And in music I am the pipe of the great organ, the sound board of the harp, the clear wonder of a flute, and the tone of a violin.

I am the zest and substance of your table, and my fruits, spices, essences and flavors minister to your health and happiness. Tea, coffee, nuts, olives, and

"Candied apple, quince, and plum, and gourd,
And jellies soother than the creamy curd,
And lucent syrups tinct with cinnamon,
Manna and dates in Argosy transferred
From Fez; and spiced dainties, everyone
From silken Samarcand to cedared Lebanon."

Your cordials, whether grape or grain, must be seasoned in my wood and stoppled with my cork. And tobacco is never quite so good as my briar bowl and amber stem can make it.

I am clothes to a man to shield his body, and ornament to a woman to reveal her grace. I am all silk and some wool. I am the tannin of good leather, the jet of jewels, and the dye of a Gobelin tapestry, a Persian rug, and a Paisley shawl. According as her whim might require, I was Eve's first garment and her latest rayon smock.

I furnish the humblest cabin and finish the most glorious cathedral. The savage and the pioneer turn to me for shelter, and I give the inspired craftsman his chosen stuffs. Michelangelo used me in his stalls for the Laurentian Library, and I am the intarsia of Santa Maria of Organo; the carvings of Grinling Gibbons in St. Paul's, and Viollet-

le-Duc's rood spire and high altar in Notre Dame.

I was the cedar of Lebanon, the olive of Gethsemane, the groves of Gilead, and the myrtle of all pleasant gardens. In the defense of your home and country I was spear, and lance, and bow. I was the ark of Noah, the Santa Maria of Columbus, and Armada

of Spain, and the fleet of Nelson. In the insignia of authority I was the lictor's rods, the king's scepter, the bishop's crozier, and Xanthippe's broom.

Jet and amber are my fossil gums, and coal and petroleum are the products of forests that ages before the coming of man were buried deep in the earth's crust so that their life was stored as fuel for your factory, power for your automobile, and potency for your high explosive.

Your mountains, that were bare rocks before, were clothed with soil and covered with verdure by my world-old labor. My traffic with the clouds first redeemed then kept your plains from desert ugliness. Your rivers are fed from springs and streams kept clean and cool in my forest depths, and they lend their power to your mills by virtue of my service. Without me mountain, hill and stream will return to their primal emptiness.

I have given words innumerable to your vocabulary, piquancy and flavor to your speech, grace to your poetry, and beauty to your history. I am never long absent from your hand, I am a part so familiar to your life that your thoughts use me unconsciously, by memory I have been wrought into the pattern of dead romance, and I am treasured in the reveries of your living love.

I have made your gardens fair with shade and bloom. I have sheltered you and warmed you. I have ministered to your need from your first father to this hour, and I have served you from your cradle to your grave. I was the wood of the altar where you worshipped God, and the incense that ascended with your prayers. I was the rod of Aaron, the ark of the Covenant, the bush that burned with the glory of Jehovah, and the cedar of the Temple. I was the substance that took the tool marks of the Carpenter's Son, the crown of thorns they pressed upon His head, and the Cross whereon they slew Him at the last.

And yet you have not loved me, nor remembered all my mercies. I have taken the brunt of your savage ignorance; I have carried the scars of your dawning civilization; and suffered the wreckage of your modern power. I have known the fires of your wanton carelessness, the torture of your senseless progress, and the betrayal of your Judas' bargaining for a little gain. But I continue my service gently and humbly to the end. I can do no other. I am the gift of God! I am the friend of man!



The Shade Tree as an Insurance Risk

The Story of How Philadelphians in the Early Days Conspired to Protect Their Trees as Well as Their Property

By HARRY F. STEIDLE

PROBABLY the first genuine action in this country toward the preservation and protection of street trees dates back as far as the year 1784, although an impression that this is a recent movement seems to prevail. In the early days of the city of Philadelphia nearly every householder was the proud owner of a beautiful shade tree—oak, maple, elm or other species which were quite plentiful in the woods nearby. Quite naturally the owners grew to love their trees more and more with their increasing years.

During this early period fire departments were unthought of, but in 1752 a company was organized for the insurance of property against loss by fire. It was patterned after the ideas of Benjamin Franklin, who was first to sign the articles of the association. This association for underwriting damage caused by fire was known as the Contributionship of Philadelphia.

The new organization grew and prospered. Claims were paid promptly and without protest until some claims were made in which flames were reported to have spread from one building to another by means of sidewalk trees which had caught fire. The salvage corps and the fire fighters that were maintained by the company also complained that the trees were in their way and hampered their activities in minimizing the loss sustained. The reported liability of trees spreading flames and the complaints by the fire fighters led to a decided prejudice on the part of the company toward insuring properties having trees in front of them. This prejudice grew to the extent that the company refused to consider such properties as acceptable risks.

In order to have their homes protected by insurance, many citizens were obliged to cut down their shade trees. This caused much dissatisfaction on the part of other citizens

who took justifiable pride in their beautiful trees and their cool, well shaded sidewalks. As a result of this forty citizens having trees on their properties notified the Contributionship of their willingness to pay an extra premium for the retention of their trees, but their offer was discarded and under no condition would houses be insured that had trees along their sidewalk.

To relieve this situation a group of tree lovers organized their own company on September 29, 1784, and thus was established perhaps the earliest concerted action toward the protection and preservation of street shade trees. It is quite natural that the mark of this company should be emblematic of the company's inception, and thus the green tree was adopted to represent the Mutual Assurance Company, which is still engaged in business.

A fire mark, such as the one pictured here, was placed on the front wall of the insured building to indicate that the property had been covered by the Mutual company. No organized fire departments were maintained except by the insurance companies, and in the event of a fire the fire fighters and salvage corps would protect the property if by chance it happened to be insured by their company. If not the firemen would leave the scene or perhaps even taunt the several neighbors who might have turned in to help the grief-stricken owner!

The fire mark shown here represents insurance issued November 10, 1803, and from that time up till 1924 the plaque has occupied its space on the front wall of a quaint old Colonial house of Philadelphia, standing as a remarkable monument to the men who had courage enough to preserve their beloved trees and as an outstanding tribute to the durability and service of wood, the gift of trees.



The Green Tree Marker, adopted as the emblem of the Mutual Assurance Company as long ago as 1784



EDITORIAL

The Milwaukee Conference

LEADERS of the forest industries in Wisconsin are to be commended on the aggressive manner in which they have undertaken to meet the forest needs of that state. Their determination to pull forestry in the state from the realm of glittering generalities into a definite and concrete program of action was well exemplified by the Industrial Forestry Conference held in Milwaukee last month. Sponsored by the Chamber of Commerce of the United States as the first of a series of regional meetings planned, it confined itself exclusively to state problems and thereby set a mark that it is hoped may be duplicated by other regional meetings to follow.

"There is no pink pill for pale forestry," declared one of the speakers, and these words well express the tenor of the conference. The forest situation of the state figuratively was thrown upon the screen and the conference confined itself to practical ways of meeting those problems. It was brought out that from an original area of over 30,000,000 acres of virgin timber Wisconsin is now reduced to only about 2,000,000 acres of old-growth forests. The lumber and paper industries of the state, together with the secondary wood-using industries, furnish employment to almost 120,000 people and represent invested capital amounting to \$422,000,000. The gross value of their annual products is \$460,000,000. To perpetuate this state wealth the conference recognized clearly that the forests of the state must be perpetuated.

It was brought out that the lumber industry of the state faces a period of serious contraction and must taper off from an annual production of 1,000,000,000 feet to about 300,-

000,000 feet annually due to the declining timber supply, and that its subsequent expansion is dependent upon the speeding up of forest growth on the 18,000,000 acres of forest land remaining in the state. The challenging question faced by the conference was what must be done to bring these forest lands back to a state of full and perpetual timber productivity. How much can private initiative accomplish and to what extent can the state and federal governments help? The majority of the speakers stressed the necessity of two basic features of a commercial forestry program, namely, adequate forest protection and an equitable system of forest taxation. In the matter of forest taxation Wisconsin has already taken a big step forward in the passage a year ago of a constructive forest crop law which recognizes timber as a crop and exempts it from taxation until time of cutting. It is interesting to note that already 60,000 acres of forest land within the state have been listed under the relief provisions of the law.

To make definite and lasting progress in forest fire protection and in every line of forestry effort the conference clearly recognized the need of public backing and a campaign of public education. It therefore laid the foundation for a state commercial forestry association as a permanent agency to carry forward the program of the conference and to bring about greater public interest and participation in the larger questions of fire protection, timber tax relief, forest research and local reforestation. The practical and serious character of the conference promises well for forestry in Wisconsin and it is to be hoped that its influence will be a lasting one.

Our Timber Supply

FORECASTING the duration of our timber supply is not an altogether popular pursuit. The question has become a highly mooted one and one which, although productive of good results in one direction, has been productive of harmful results in another. In the days of Roosevelt the prediction was made that the end of our timber plenty would come within about thirty years, or between 1935 and 1940. It was this prediction that gave full voice to the

cry of impending timber famine and awakened the American public to the need of giving serious thought and definite action to the formulation of state and federal forest policies.

Even though it is now seen that the prediction will miss its mark there can be no doubt that the alarm sounded at that time gave an immeasurable impetus to public interest in forestry that in the succeeding years has grown by leaps and bounds. The point may well be made that had no pre-

diction been attempted at that time the country might well be far behind where it stands today in point of forest progress. On the other hand, the early predictions of timber exhaustion unquestionably helped to hasten the acquisition of remaining stumpage by private individuals and an overdevelopment of the sawmill capacity of the United States that is at the bottom of lumber's present troubles. This has reacted unfavorably upon the forest industries, upon industrial forestry and upon the best utilization of our remaining forest resources.

Much has been made of the fact that these past predictions are being proved wrong in point of time. Because of their inaccuracy conservationists have been blamed for present chaotic conditions within the lumber industry. It must be apparent, however, that had these predictions been accurate the same results would have followed. From the standpoint of the nation the biggest problem is to be prepared to meet the wood requirements of its citizens and industries when the time of timber shortage arrives. When the pinch will come is a vital question, and it appeals to us that in the long run it is a far more constructive attitude to attempt to forecast the period and the conditions against which we must prepare than to leave the public mind in a state of confusion and complacency in respect to its future problem of continuous wood supply.

The American Forestry Association is not in sympathy with "alarm" statements made simply to create public senti-

ment in forestry. It does believe, however, that this question of how long our remaining timber supply will be able to meet the growing needs of the nation is one that must be faced frankly and openly and clarified in so far as the best information available makes possible. We are, therefore, glad to present in this issue an article by Mr. Robert V. Reynolds, who is probably the best authority on forest statistics in the country. In his article "How Long Will Our Sawtimber Last?" Mr. Reynolds makes no claims for precise accuracy. He merely bases his predictions upon the 1920 timber estimates of the Forest Service, admittedly approximate but nevertheless the best available at the present time.

These estimates would indicate that the so-called doomsday of plentiful forest rations for the country will fall in the decade beginning 1960, or some twenty or twenty-five years later than that prophesied two decades ago. It is conceivable but hardly likely that Mr. Reynolds's estimate may be as wide of the mark as former estimates. It is to be hoped that speedy passage of the McNary-McSweeney bill will make it possible to throw a clear light upon this important question. In the meantime let us not forget that meeting the nation's future wood requirements is the great, pressing problem. The question of whether or not the shortage will come within twenty-five years, or within fifty years, is of less importance than being prepared to meet the shortage when it does arrive.

A Man and A Railroad

IN Sir Henry Thornton, President of the Canadian National Railways, Canada has a friend and advocate of forestry of whom its citizens may well be proud. The measure of the man may readily be taken from the following extract from an address which he delivered recently at a meeting of the Canadian Forestry Association:

"The great timber stands of British Columbia, representing fully half of the softwood supply of Canada, are an inheritance of the whole Canadian people, and not until the meaning of that fact is brought to the understanding and the conscience of every Canadian can we look for such conservation practices as common sense demands. One of our commonest errors is to parcel out mentally the forest resources as the peculiar interest and advantage of one province or one commercial interest. The forest properties of British Columbia, as of Quebec and Ontario, are only nominally the possession of a government or of a pulp and paper company. From the point of view of distribution of wealth, the true owners, the vital partners, are the wage earners, the merchants, the railways, manufacturers and wholesalers who from the stream of \$500,000,000 a year of forest money maintain no small part of their business volume. The governments in turn perform the service of agents and trustees of the whole people, turning back to all elements of the population the profits accruing from their policies of conservation. It is only mental confusion therefore that assigns the forest resources of Canada to the name

of a government or a private company. Few of us realize, I am sure, what a minor part is played by the element of private profit in the annual circulation of the wealth derived from forest operations. Once the Canadian people visualize timber stands as TRADE rather than TREES, we will feel the pull of popular awakening that will outlaw forest destruction as an economic plague."

Sir Henry practices what he preaches. The Canadian National Railways has all but outlawed forest fire as a destructive agency. Along the whole mileage of the Canadian National Railways—the greatest under one administrative head in North America—there was burned over in 1927 as a result of railway operation only 1,233 acres of forested land. Values destroyed by these fires were estimated at less than \$6,000, over half of which was charged against the destruction of young forest growth. The value of merchantable timber destroyed amounted to only \$14. Here is a notable record for a great national railroad and so far as we know one that cannot be matched by any great railway system in the United States. It not only reflects honor upon the president of the company, but it shows what real executive leadership with a true grasp of forestry can accomplish.

How has this work been done? "In a sentence," declared Sir Henry, "by the development of the individual's interest in Canadian forests." It is men of the human, far-seeing practicality of Sir Henry who give forestry its strongest currents.

The Back Yard Tree

The Ailanthus, Oriental "Tree of Heaven," Is Rapidly Supplanting Native Trees in Our Crowded Cities

By MILDRED G. DURBIN

"THE house was all right, but we didn't rent it because there was a back yard tree beside the door." My friend was telling me of the adventures of her widowed mother and herself in finding a suitable house.

"Back yard tree! What's that?" I inquired, thinking this must be a new species.

"You have seen dozens of them," she replied; "its real name is ailanthus, or Tree of Heaven. It grows best in back yards and prefers the vicinity of the garbage can or a dirty, cast-off dish-rag. It is not an ugly tree, but I dislike it."

In crowded parts of our cities this tree is rapidly taking the place of some of our native trees. Our beautiful elms and maples, which were left growing or were planted by the early city fathers, have gradually given up the unequal struggle against city dust, smoke and gases. Scientific care has prolonged their lives, but they have either met with an early death or are struggling on in premature old age.

In horse-and-buggy days, in every city of fifty thousand or more, the well-to-do built their huge houses near the business sections. The streets were lined with graceful drooping elms and majestic maples, some of which were virgin forest trees.

As the years passed, however, stores and factories encroached, the automobile came, and today the sons and grandsons of the builders of the towered and battlemented houses live in elm-shaded suburbs, while most of the ancestral homes are rooming or apartment houses. The beautiful trees have nearly all drooped and died, and in their place the ailanthus flourishes by cellar door, garage, in the bar-

berry hedge, in the crevices of the walk, or any place where its roots can find a little earth.

But it has reached its greatest glory in the neighborhood of factories and railroads where the ground is covered with soot and the air is filled with gases. Here not more than two years are required to transform a vacant lot into an ailanthus thicket. In such localities it holds undisputed sway. True, a few faded and stunted elms may remain, but in five or ten years they will give up the unequal struggle against their changed surroundings.

In these sections, the ailanthus is welcomed. Its compound leaves, from two to three feet in length, provide good

shade. In some instances, they have been wisely transplanted and set in rows, thus providing shade where it is needed most. A sprout may grow eight or ten feet the first season, and although it grows more slowly thereafter, by the end of the thirtieth year the tree is likely to be



Though often used now in formal park plantings as a temporary "filler in," the Ailanthus, familiarly known as the "Back Yard Tree," finds in such locations as this its favorite habitat—leaning over the back fence in gossipy, friendly fashion

sixty feet or more in height and three feet in diameter.

No matter how dry and hot the season is, its leaves are fresh and green from June to October, and hydrangea-like clusters of flowers and fruit, varying in color from yellowish-green to red and bronze, are borne in profusion.

Though its winged seeds fly great distances, we see it less frequently as we travel toward the suburbs. If planted in the country where the air is pure and the soil rich, it grows, but it seeds less freely than in the city. If this were not the case, it would march through the suburbs to the farms where it would be a pest in the fields and would choke out our native forests. But apparently it follows man, and thrives best where human activities are thickest

Perhaps through ages spent in civilization, it has adapted itself to these conditions, while our birches, maples, oaks, elms and beeches are still wild and uncivilized.

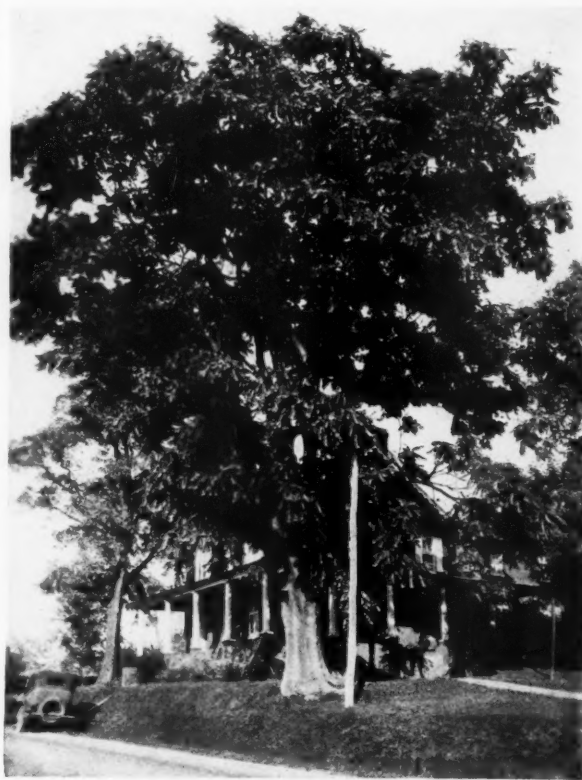
When the human race was young, the ailanthus was found in the Molucca Islands, a group about four degrees south of the equator and not far from Borneo. From there it was planted in China, and as the ages passed it became so common and useful to the people that it is now often termed a Chinese tree. It grows even faster and taller in China than in America, one species often reaching a height of 150 feet. Because it appeared to pierce the sky, the ancients called it "The Tree of Heaven." In the cities, particularly in Peking, it is a favorite shade and ornamental tree.

In 1751, ailanthus seeds were sent to the Royal Society of London by the Jesuit missionary, D'Incarville. These were planted and a systematic attempt made to raise the ailanthus moth on the trees. This, however, failed, and soon the



Photograph by H. B. Kempton

The Ailanthus, or "Back Yard Tree" in its most familiar aspect, its graceful, fern-like head nodding a green greeting in the most unexpected and neglected corners and by-ways



Courtesy Pennsylvania Department of Forests and Waters

Grown to magnificent proportions in this unusual specimen, the Ailanthus drops its title of "Back Yard Tree" as it rises to claim that of "Tree of Heaven"

trees were cultivated only for ornamental purposes. They became popular in Europe and today the tourist finds them lining the boulevards of many foreign capitals.

The first ailanthus was brought to America in 1784 by William Hamilton and planted in an arboretum near Philadelphia, but it was not until 1820 when it was introduced and cultivated by William Prince, a nurseryman of Flushing, Long Island, that the tree sprang into popularity. It was used extensively as an ornamental tree in New York and Brooklyn, and the ailanthus-lined streets made a dignified and exotic setting for the elegantly cushioned carriages and barouches of the nineteenth century.

It was recommended for planting in the early days of Kansas, and it was found to thrive in California. It grows well in sand and in soil that produces only scattered clumps of sagebrush. The extremely low temperatures of the northern States and high altitudes are fatal to it; in the remainder of the country, however, it is found in almost every hamlet.

In Pennsylvania, where its history in this country begins, it has become a serious problem. In the early days it was extensively planted in the southern, central and southeastern portions of the state, and because of its remarkable ability to grow from suckers, shoots and seeds, this aggressive tree threatens to crowd out the native forests. To deal with this situation, the Pennsylvania Department of Forests and

Waters made extensive experiments in its propagation, growth and possible uses.

It was soon clear that to find uses for this tree would be easier than to try to attempt to control its progress. The structure and properties of its wood suggested its use for pulpwood, and one-half cord was sent to the Forest Products Laboratory at Madison, Wisconsin, where it was found to be admirably suited to this use.

In the matter of propagation and growth, careful and systematic experiments were made in growing trees from cuttings, suckers and seeds. One of the most interesting of these experiments is being made in the barren forest lands of the coal and coke region of western Pennsylvania. The native trees will not reforest these hills where they must live in smoke and noxious gases, and the Department of Forests and Waters has used thousands of ailanthus seeds at various altitudes and in various methods of planting. If the ailanthus will clothe these bleak hills, a problem that has long puzzled the state foresters will be solved.

There are pistillate and staminate trees, and since the blossoms of the staminate trees have a disagreeable odor, only pistillate trees should be cultivated for ornamental purposes. This can be accomplished by obtaining cuttings

from pistillate trees only. This method has the further advantage of preventing seeding, providing none of the neighbors harbors a staminate tree.

A second objection is the large number of root suckers that may spring up any place within a radius of seventy-five feet of the trunk. When the tree is used for ornamental purposes, these suckers should be cut so as to permit cultivation of the tree. The city-dwellers must remember also, that its roots are prone to explore sewers and drain pipes.

If these trees are grown for fuel, seed may be broadcast over the space selected and the young trees cut every third or fourth year. New trees are provided by sprouts from the stumps, by root suckers and by seeding.

Little attention has been given it as a cabinet wood, but experiments show that it is medium-hard, deep-red in color, and when polished has a fine, satin-like luster. For either lumber or pulpwood, the Pennsylvania Department of Forests and Waters found that the ailanthus is at its best when about thirty years old.

Under certain conditions, the ailanthus is really a useful tree. My young friend dislikes it only because it thrives best in unlovely places; but whether we like it or not, it is here to stay, and perhaps some day we shall be very grateful for its presence.

The Home Builder Conserves

(Continued from page 278)

during the drying process. These defects are often needlessly increased by reason of careless piling and improper operation of dry kilns. Research has devised methods of reducing these losses. The ultimate consumer has, however, little opportunity to directly encourage the adoption of scientific drying methods by the industries.

So much for the second category of wood wastes, on which the intelligent consumer can exert an indirect but nevertheless valuable personal influence. There still remains a third category, which, in so far as the general public is concerned, can only be influenced by those who happen to be bankers or financiers and who thus control the purse strings of capital by which forest-using industries are established, expanded, contracted, or abandoned. Just as the far-western bankers had to learn by bitter experience that an adequate area of productive range was just as important to the safety of a livestock loan as the number of cattle or sheep offered as security, so do the bankers of forest regions have to learn that an assured supply of raw material is just as important to the safety of an investment in a wood-using plant as is the plant itself, its product, and its market.

There is one thing about a wood-using plant which even bankers have not generally realized, namely, that a stable supply of raw material often depends on a proper grouping of diversified industries in each forest community. Thus

in a certain "woods" town three sawmills might be a bad risk, whereas one sawmill, one paper mill, and one box factory might each be good risks. Why? Because their raw material needs are complementary instead of competitive; because what one wastes the other uses. It is the same problem as diversification in agriculture, and holds out the same possibilities for industrial permanence and prosperity, and for conservation of natural resources.

The foregoing does not attempt to give even an outline of the task which the Nation is facing in the prevention of forest wastes. It merely sketches some of the ways in which the thinking citizen can aid. Even the thinking citizen is too apt to assume that his only power as a conservationist lies in his vote. Such an assumption is wrong. At least an equal power lies in his daily thought, speech, and action, and especially in his habits as a buyer and user of wood.

I admit that the effective exercise of his power as a purchaser and user of forest products depends on his being well posted. But most problems of good citizenship in these days seem to resolve themselves into just that. Good citizenship is the only effective patriotism, and patriotism requires less and less of making the eagle scream, but more and more of making him think.



Snapshots of European Forests

By An American Forester



V. Through Sweden's Forests

By JOHN D. GUTHRIE

BEFORE seeing Sweden, I must confess that I thought of it largely as a country where "snooze" and most of our lumberjacks came from. I had lots to learn, for it is the cleanest, thriftiest, best-kept country that I have ever seen. Nothing is lying around loose; everything seems to be taken care of, neatly piled up, or put away under cover. Neat and well-ordered farm homes, buildings, fences, and yards, all painted, tidy, swept—it reminded me of an American army post just before a general was expected! We came into Sweden at the north end from Finland and then went still farther north to Kiruna, some 90 miles inside the Arctic Circle, where one of the largest iron mines in Sweden is located. Sweden is far more fortunate than Finland in possessing natural resources, having valuable iron ore deposits and other minerals, more forests, and extensive water power possibilities, the latter very largely developed. The country is roughly the shape of and slightly larger than California. Sweden is an inclined plane, draining into the Baltic and the Gulf of Bothnia. Of its total land surface (one-tenth is covered by lakes), eight per cent is cultivated and forty-two per cent in forests. With her higher elevations, she has very valuable water power. In the south are large and valuable farming lands and much hardwood forest.

Around Kiruna, which is on one of the three trans-Sweden railroad lines, there are scrubby forests of birch, with scattering Scots pine. Just south of Kiruna and still within the Arctic Circle are good forests of pine, under management. The mines at Kiruna, though all of the open-cut type, use a large quantity of timber and lumber bought from the

state or government forests or cut from the company's own forests. Kiruna is within Swedish Lapland, and here we saw reindeer and several Lapps in their picturesque costumes. It was too cloudy and rainy to see the midnight sun. The lakes were still frozen over, though there was little snow left except on the highest mountains. From Kiruna we went south to Hältnäs, still in northern Sweden. Here we were met by Jägmeister (forest supervisor) Axel Elgstrand, who proved

to be one of the liveliest, peppiest foresters it was our good fortune to meet throughout our forest wanderings. He is a technical forester, graduate of the Stockholm Forest Institute, has traveled on the Continent, and spoke English, French, and German. He has charge of three state or domain forests, is director of a ranger school, and has charge of the large and up-to-date seed-extraction plant. His headquarters at the ranger school are fifteen miles from one small town and twenty miles from another. He is a busy forester, and yet there was absolutely no detail of our three-day stay with him that he overlooked. One of our party was interested mainly in the seed-extraction plant, and another wanted to see the log drive in operation; he accommodated everyone and satisfied everybody. He took us over his forest, showed us his methods of cutting, different stages of natural reproduction in pine and spruce stands, his original methods



Our party in one of the Pine Forests of Northern Sweden

of draining swamps to stimulate forest growth, of burning spruce brush after cutting to kill off the dense mat of huckleberry; his own sample plots, his ranger school, the extraction plant, the log drive—everything. He was enthusiastic, courteous, with boundless energy, a forester with real enthusiasm for forestry. It was an inspiration to be with him.

And he runs his forests, he experiments, he tries different systems of thinnings, of cuttings, of management, and what seems to be expected of him primarily is that he shall make his forests pay—and he is doing that. His management of his forests is essentially a business one; according to his statements he can justify it on no other grounds.

We visited other forests farther south where there was more birch and some spruce and fir, another forest school for practical work at Garpenburg, then the Forest Institute and the research station at Stockholm, and hardwood forests of southern Sweden. Our trips were efficiently arranged by Inspector de Aminoff, chief of the Administration Branch in Stockholm, who is not only an eminent forester, but a charming gentleman. There were luncheons, dinners, smokers, and special trips, at which we met the director of the Swedish Forest Service, his assistants, and the faculties and staffs of the forest school and research institute, including Doctor Heinrich Hesselman, the soil expert; Doctor Trägårdh, the forest entomologist; and Mr. K. J. Beskow, the director of the Forest Service.

The Forest School, or institute, at Stockholm is the largest, most complete and commodious of any I know of anywhere. Their collections of tree fungi, forest insects, and forest fauna are most interesting. These very extensive collections are not scattered through their buildings

or in some out-of-the-way place, but together and arranged along the walls in one of the main lobbies, where students may see them many times each day. The

collection of game animals and birds of the forest regions was most complete and

interesting. For example, for deer there were mounted specimens of male, female, and young, models of the tracks or footprints of each, with the plants which they feed on. For birds, such as the black cock or capercaillie, a typical bird of the

Swedish forests, there were life-like specimens of the male, female, and young, eggs, nests, food, and tracks—all this in natural forest settings. European foresters know their game animals, birds, and fish, their habits, food requirements, and methods of propagation; all this is

not only a part of their job, but seems a pleasure to them.

As we came down through the entire length of Sweden we had vividly impressed on us the interdependence of forest and farm.

Open valleys, green fields, many, many farm houses, all neat, well built, and painted red, while down each river we crossed logs were floating, going to mills or pulp plants nearer the coast, while over the higher country stretched what seemed a continuous cover of green forests. The

farms were small, but they were prosperous looking, because of the forests and the work they afforded the farmers. And at night in each cottage, however small, we saw the glow of



We went into Sweden from the North, and on up some ninety miles inside the Arctic Circle and were greatly impressed by the progressive forest methods in practice everywhere. This is one of the forest roads in Northern Sweden



Logs coming through a splash dam at the foot of the lake. The interdependence of forest and farm is an outstanding fact in Sweden—much of the prosperity of the small farmer is due to the forests and the work and products they afford him



Jägmeister (Forest Supervisor) Axel Elgstrand, our host in Sweden for three days, and one of the busiest foresters we met in Europe. Enthusiastic, and with boundless energy, forestry is essentially a business proposition with him and he manages his forest areas accordingly

an electric light. We saw no idle folk, we saw no evidences anywhere of poverty; everyone looked clean and happy, was at work, and seemed to have a lot of self-respect.

American foresters may learn a great deal from a visit to Sweden's forests. In many ways her forest problems are much like ours, and there is much to be gained through meeting her foresters and studying their methods.

The Nesting of the Band-Tailed Pigeon

(Continued from page 268)

We spent most of the morning watching the mother pigeon as she flew about in the tree-tops or in the thickets. She was larger than most of the domestic pigeons that live in my cotes, longer and trimmer in shape, having a general bluish coloration; her upper parts were grayish-brown with faint bronze lights. Her neck was bronzy green, crossed by a narrow collar of white. The extreme top of her head was purple, her breast a delicate brown, while her light gray tail was crossed by a distinct dark band near the middle.

When the baby pigeon was small, the mother stayed near the nest, often sheltering it with her wings during the mid-day heat; but when it was about ten days old she remained away from the nest for hours at a time. The male was observed about the nest only twice.

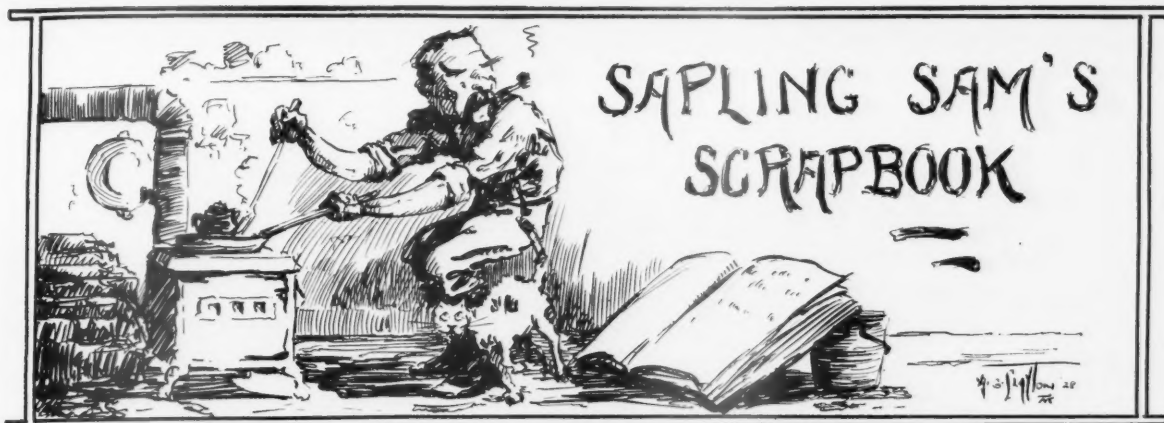
When the young bird was two weeks old, I visited the nest in company with Clinton G. Abbott, director of the Natural History Museum of San Diego, who especially desired a picture of the young pigeon. After a short time Mr. Abbott made friends with the nestling. He knew just how to approach it and win its confidence. After watching us awhile the bird went to the nest-edge, and cocking its head to one side, stared curiously around it. Mr. Abbott, with his camera, climbed the tree and waited in the fork of an upright limb for the bird to change its position. The sun beat down unmercifully through the oak branches, and as the nest was not sheltered, the nestling panted with the heat, and would not close its bill. Finally we devised a way to relieve the situation. I began a low imitation of a hawk's cries with all the exactitude possible. The bird turned its eyes for a second, wheeled around and shut its bill with a snap. The pictures were taken.

The following day the old pigeon left the oak tree in the early morning and returned at twilight. Next day she left at daybreak and returned at sundown. For more than a week after that she was not observed at the nest except in the late afternoon.

As the pigeon grew older it developed into a handsome little bird. Its plumage was similar to that of the adult with vinaceous tinge wholly lacking; its neck was without the white collar or iridescent bronzing, while its underparts were dark brown, with feather tipplings of lighter color, giving a faintly scaled effect. Its wings were now almost strong enough to support the weight of its body. Soon it would leave the nest in the oak tree and explore the trees of the wooded valley.

Early in October the young bird left the nest. With folded wings it sat on a small branch of the oak, where it remained until late in the afternoon. That night it roosted on the high limb of a nearby pine tree. The following day it left the neighborhood and I did not see it again.

A week or so later, while looking for pine cones, I accidentally discovered a band-tailed pigeon sitting on her nest about ten feet above the ground in a live oak tree near a country road. The nest was remarkably well constructed of oak twigs with a thick lining of pine needles, and contained one egg. I had the nest under observation for five days when I was obliged to return to San Diego. A neighboring rancher reported that a few days after I left a hard rain storm swept over the mountains. He found the pigeon brooding during the first day of the storm, but she left the nest some time on the following day and did not return to it again. It was not until several weeks later that I learned that it was not the ordinary habit of the bird to rear a brood so late in the season. And that the date of my finding—October twelfth—established a new late nesting record of forty-eight days for the band-tailed pigeon in California.

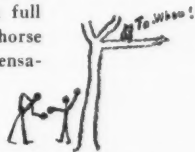


THE WHOLE TRUTH AND MORE

F. V. Horton, of the Columbia National Forest, says that,

"Out of the grist of bills, claims, and compensation cases, there is occasionally a gleam of humor. Here's a case: One Rex Murphy was kicked on the nose by a horse; said horse was owned by Art Davidson, packer. Later, the same horse was accidentally killed.

"We sent Murphy's compensation form to Davidson for his statement as a witness to Murphy's accident. Davidson takes a snap look at the form and writes a full and detailed explanation of how the horse was killed. Now, we have a compensation form which shows clearly that Davidson's horse met a violent death by kicking one Rex Murphy on the nose. As nearly as we can tell, the horse broke its leg and Murphy is as good as ever."



AT SUNDAY SCHOOL

Parson: "And which of all the parables do you like the best?"

Tommy: "The one where somebody loafs and fishes."—So says the *Railway Carmen's Journal*.

WHO WANTS A WORM, ANYWAY?

The Kablegram prints this dialogue:

"Johnny," said the minister, reprovingly, as he met an urchin carrying a string of fish one Sunday afternoon, "did you catch those today?"

"Ye-es, sir," answered Johnny. "That's what they get for chasin' worms on Sunday."

CONTRIBUTIONS TO SCIENCE

The examination answers of forestry students disclose fearful and wonderful facts. *Sylva*, the journal of the Edinburgh University Forestry Society, records that "*Fomes annosus* is the fungus caused through the agency of rabbits or other fur-lined animals." And that "Cuttings are sunk about three feet

in the ground depending on the length of the cuttings." Also that "This serious disease causes the trees to die from the top upwards."

Coming back to this side of the ocean one may read in the New York State College of Forestry *News Letter* of the detail into which the state constitution goes, thus: "Article 7, Section 7"—says that no dogs are to be had within the Adirondack region without a special license.

MIGHT 'AVE BEEN AN 'OOT

The *M. K. T. Magazine* tells of an Englishman who heard an owl for the first time.

"What was that?" he asked.

"An owl," was the reply.

"My deah fellah, I know that, but what was 'owling?"

BEER AND THE BEAR

Western Out-of-Doors quotes this letter from *The Portland Oregonian*:

"Canoe Traverse, Quebec, Canada, 10th October, 1927. To the *Oregonian* the editor who writes of wild animals sometimes:

"After while, I think, you write if a bear will come to liquor mash and eat him. I say yes, monsieur, he will for a certainment. How do I know, you will inquire, that is what I will tell you now, monsieur.

"Some long time ago I am in my canoe one summer afternoon on Lak LaDuc and I am ver sleepy. In my canoe are half dozen bottles beer that I am drinking of and I am very drowsy. I am half asleep when what you think?

"That low fellow Henri, that black good-for-little loup garou, that son of a chien, he sneak up and drop a half-size bear in my canoe while I am sleep. Nom of a diable but I am rude awake. That bear she tramp all over me to get bottle beer—she go craze for my beer. She grab bottle and drink, drink, drink.

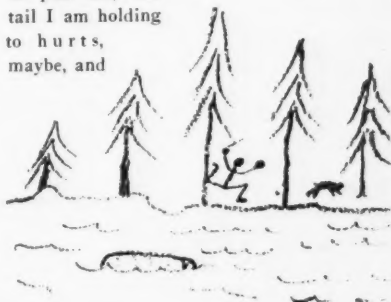
"I am astonish, dumfounded. What would you think? I think I am in nightmare and

I fight and I fight, but I cannot overcome this bear, which is more and more craze, and after she drinks what beer is in open bottles she chews out corks and drinks some more. Me, my friend, I am soon deprive of all my beer.

"I am mad then, I can tell you, monsieur. I ask you, would you not be as well? That bad man Henri, he better be full of care. I say I bet he will swing from end of rope yet, by dam. I am so mad I strike that bear over head with my paddle and he rush at me and hit me with paw first one side head, then the other. He is one fierce bear, I tell the truth.

"That black bear she tip over my canoe and we are out in middle of Lak LaDuc, far from shore. The bear she start to swim for shore but I am not to be left behind I can tell you. I grab that bear by tail and hold on tight and she pull me through the water just like she had engine in her, what you think?

"But you say, ah ha, a bear she has no tail. But I will defat you there, monsieur. This bear she has two tails, I see them with my own eyes, and after while she gets tired to pull me, her tail I am holding to hurts, maybe, and



she turns around and snaps at my arm. Then, quick, I grab other tail and I am towed to shore.

"I chase and I chase that bear till she runs away and I fall asleep in the woods for quite some while.

"This, you can know, is true story of how bears like liquor.

PIERRE LACONTE, Guide."



Official Washington Pays Homage to Forests at Association's Forest Week Meeting

Honorable Charles Stewart, Minister of the Interior for the Dominion of Canada, was the principal speaker at the American Forest Week meeting held under the auspices of The American Forestry Association on Monday evening, April 23, in the hall of the Chamber of Commerce of the United States, Washington, D. C.

Secretary of Agriculture William A. Jardine, whose department has jurisdiction over the National Forests of the United States, presided at the meeting. Honorable Vincent Massey, Canadian minister to the United States, introduced Mr. Stewart, who spoke on "What the Forests Mean to Canada." Many prominent government officials participated in paying this country's respects to Minister Stewart, including Stephen Mather, Director of the National Park Service, George Otis Smith, Director of the Geological Survey, R. Y. Stuart, incoming Chief of the Forest Service, Paul G. Redington, Chief of the Biological Survey, Scott Turner, Director of the Bureau of Mines, and Charles H. Burke, Commissioner of Indian Affairs.

The Minister of the Interior of Canada has jurisdiction over a great variety of activities dealing with the national resources of that country. Over half of the land in Canada is still held by the Crown, either in the right of the provinces or of the Dominion,

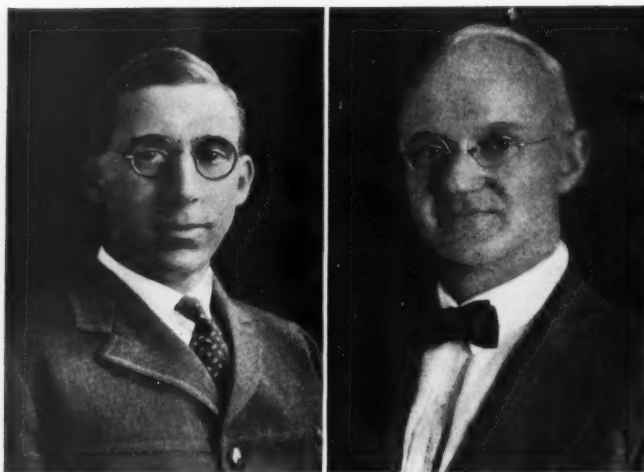
and the greatest share of this vast public domain is under the Canadian government. It is the duty of the Minister of the Interior to manage this great estate and to develop its resources.

Preceding the meeting at Washington, President Coolidge broadcasted from the White House his American Forest Week proclamation over the red network of the National Broadcasting Company.

Mr. Stewart, following the President, extended a brief Forest Week greeting from Canada to the people of the United States. The radio program was concluded by a group of songs appropriate to American Forest Week by Louise Homer Stires, one of the country's most talented sopranos.

The Washington meeting in honor of Minister Stewart was one of a series of gatherings arranged in American and Canadian cities in observance of the annual forest week period which both countries were celebrating concurrently, pursuant to proclamations issued by President Coolidge and Governor-General Willingdon of Canada.

Similar meetings were held in New York City, Boston, Chicago, Detroit, St. Louis, Minneapolis, and Portland, Oregon, under the joint auspices of the Canadian Forest Service and the American Forest Week Committee. In Canada, meetings were held in Ottawa, Montreal, Toronto, Winnipeg and Vancouver, with many



WILLIAM B. GREELEY

ROBERT Y. STUART

On May 1, Col. Greeley, Chief of the United States Forest Service for the past eight years, retires to become affiliated with the West Coast Lumber Manufacturers' Association. He will be succeeded by Major Robert Y. Stuart

speakers from citizens of the United States prominent in forestry affairs.

One of the novel innovations of the radio program Monday night was an announcement that The American Forestry Association would distribute four-year-old Norway spruce trees free to those of the radio audience writing to the Association telling of the program. Up to the time of going to press, several thousand letters had been received.

Dr. John C. Merriam, Charles Sheldon, William M. Ritter and Ovid M. Butler, Executive Secretary of The American Forestry Association, formed the Association's committee in charge of the meeting.

Yale Forest School's New Policy

The Yale School of Forestry has announced certain changes in policy that will broaden the opportunities for work of an advanced and specialized character. The changes involve first a modification of the requirements for the degree of Master of Forestry, second the recognition of forestry by the Graduate School of the University as an appropriate field of study for the degree of Doctor of philosophy, and third the enlargement and enrichment of the courses offered in a number of subjects.

Under the new plan the requirements for the degree of Master of Forestry include two years' work in technical forestry, one year of which must be in residence at Yale; a thesis representing work of an individual character; and an examination covering the general field of forestry. The new plan abolishes the former requirements regarding the election of courses. While each student will be permitted to elect any course he may be qualified to pursue, there are certain subjects that must be included if the student has not already covered them. The changes, however, will not affect the time required to obtain the degree.

The degree of Doctor of Philosophy is conferred by the Graduate School of the University. The work of the student is under the direction of the faculty of forestry of the Graduate School. Under the rules applicable generally the degree is conferred upon students who have received the bachelor's degree for a four-year undergraduate course. It is also necessary for those working in the field of forestry to hold a degree in forestry.

Lumber Association to Meet at Chicago

The annual meeting of the National Lumber Manufacturers Association will be held at the Congress Hotel, Chicago, Illinois, April 30 to May 2. Trade-marking and grade-marking of lumber will be featured. Immediately following the close of the conference, delegates will go to Washington, D. C., for a general lumber conference on lumber standards, and attend the annual meeting of the National Committee on Wood Utilization, May 3 to 5.

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California Census of Big Game Animals

There are more than 250,000 big game animals in the eighteen National Forests of California, according to a recent census of wild life taken by rangers of the United States Forest Service. The census shows that there are 121,700 black tail deer, 117,000 mule deer, 10,300 black and brown bear, 680 mountain sheep and 125 elk in the Federal forests of the state.

In 1927, 56,292 hunters took advantage of the hunting grounds of the National Forests, which are fast becoming the last refuge of the California big game. The census shows that 11,552 deer were killed within the Government forests last year or 2,271 less than the previous year, although the increase in the number of hunters over 1926 was 7,160.

Maryland Forestry Meeting

The annual business meeting of the Maryland Forestry Association was held in Baltimore, March 15. C. P. Wilber, State Forester of New Jersey, was the principal speaker, and gave an entertaining and interesting talk on the state forest movement in New Jersey and in other states. Fred B. Trenk spoke on the mining of cypress from the swamps along the Pocomoke River on the Eastern Shore, and F. W. Besley, State Forester of Maryland, spoke on the forests of that state. The following officers were elected for the ensuing year: President, Carville D. Benson; Directors, DeCourcy W. Thom, H. Arthur Stump, H. J. Patterson, Mrs. Albert Sioussat, Mrs. William J. Starr, and J. Harris Franklin; Vice-Presidents, Standley Evans, Orlando Harrison, H. H. Holzapfel, Oliver Metzgerott, and Mrs. Edward H. Bouton; Secretary-Treasurer, Mrs. James Hooper Dorsey.

New York Enlarging Forest Preserve

Upon the recommendation of Conservation Commissioner Alexander Macdonald, the Board of Commissioners of the Land Office has approved fourteen contracts for the purchase of land for Forest Preserve purposes in the State. These contracts total 3,299.35 acres, the total consideration being \$25,627.75, or an average price of \$7.93 per acre.

Of the fourteen contracts approved, nine covered 1,807.85 acres located in the Catskill Forest Preserve, the remaining five being in the Adirondacks. The parcels approved for purchase range in size from seventy-five to approximately 600 acres and are located adjacent to state owned lands or in vicinities where other lands are being considered for purchase.

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THIS is the book of the year for fox and fur farmers. Mr. FRANK G. ASHBROOK, the author, as chief of the UNITED STATES DIVISION OF FUR RESOURCES, has studied the problems of practical fur farmers in every section of the country. This book discusses the de-

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New Hunting and Trapping Regulations for Alaska

Revised regulations respecting game animals, land fur-bearing animals, game birds, non-game birds, and nests and eggs of birds in Alaska have been adopted by the Secretary of Agriculture. The revisions were made after consultation with the Alaska Game Commission and approval of the Commission's recommendations by the Biological Survey. The regulations become effective ninety days after date of publication.

Important changes from existing regulations include the reestablishing of the closed season on beaver throughout the Territory after the open seasons permitted during the spring of 1928. This action resulted from a careful study of the conditions found to exist in the regions where beavers occur and was taken in order that the breeding reserve might not be endangered to the point where another long closed period would be necessary.

Slight changes were made in the seasons for trapping muskrats in a number of fur districts, and the scarcity of minks in certain areas necessitated closing the season on these valuable fur-bearers.

The increasing popularity of the Alaskan big-game hunting fields and the signs of depletion of the big brown and grizzly bears brought about a reduction in the bag limit from three to two on the Denai and Alaska Peninsulas and the Kodiak-Afognak Islands group. The non-resident bag limit of caribou has been limited to two throughout the Territory. Limit on the mountain sheep was also reduced to two, thereby making the bag limit uniform in all districts.

The few moose remaining on the Alaska Peninsula south and west of the Kvichak River, Iliamna Lake, and the old Kamishak-Kakhonak Bay Portage are given complete protection by the discontinuance of the former open season in that area.

The Alaska Game Commission at its annual meeting at Juneau in February adopted revised regulations relating to guides, poisons, and resident trapping licenses, essentially the same as the old, with the exception that the requirements of applicants for guide licenses are made more stringent.

New Trails and Camps

The spring program for forest recreational development of the New York State Department of Conservation includes nearly twenty camp site and trail projects.

It is planned to greatly increase the work done on pleasure trails in the interior of the Adirondack and Catskill regions. The department proposes to establish a section of standard trail of increased width and better tread, to serve as a model for future trail construction. Along these trails a number of open camps will be constructed for the accommodation of hikers and mountain climbers.

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Book Reviews



THE NATURE ALMANAC. By Arthur Newton Pack and E. Laurence Palmer. Published by the American Nature Association, Washington, D. C.

This is "A Handbook of Nature Education" which features and emphasizes the immense importance of Nature's laws in the world of living things. No one is exempt from the effects of these laws, and no one should be unfamiliar with the manner in which they function.

A part of the book called "The Nature Calendar" takes the year month by month and discusses it from every outdoor angle. Teachers will find another section, the school nature outline, very useful, and will be especially grateful for the information given on adapting study material for use in the different grades. The bibliography of text books on nature subjects is an outstanding portion of the book. "The Nature Almanac" is a good companion book to "The Forestry Almanac," two editions of which have previously appeared. It will answer many questions and solve many problems in its field.—G. I. N.

ANIMAL LIFE OF THE CARLSBAD CAVERN. By Vernon Bailey. The Williams and Wilkins Company, Baltimore, Maryland. Price \$3.00.

Known commercially for many years for its immense deposits of guano, the amazing extent and fascinating interior life of the Carlsbad Cavern has only recently been brought to the attention of the general public. Mr. Bailey, one of the first of many noted naturalists and travelers to visit this new natural wonder, has made a detailed study of the interior of the caverns and in his book tells the whole story of his investigations and of the interesting animal life that he found.

The location and general features of the cavern, the mammals, the birds, and the reptiles found in and about it are described, and the life zones of the Carlsbad region explained.

Altogether, there are few who come into contact with nature in any of its living aspects who will not enjoy reading this story, as it has as much interest for the non-technical reader as for the student of science.

—A. L. G.

FUR FARMING FOR PROFIT. By Frank G. Ashbrook. The Macmillan Company (New York). Price \$4.00.

Of the Rural Science Series, and edited by Liberty Hyde Bailey, this is a practical book telling of fur farming in North America. Biology does not enter into the author's treatment of his subject, which is confined to a broad discussion of the principles and practices of feeding, breeding and handling fur animals for the production of marketable pelts. The author tells of successes and failures, and how and why these conditions come about in the business of fur farming. With a thorough knowledge of all the fur farming regions of the continent, he gives interesting and digestible information regarding the varying characteristics and habits of fur-bearers, and advises as to what animals to raise. It has lots of interest for the general reader, and would seem to be a mine of information for fur farmers or those expecting to enter the business.—

L. M. C.

A GUIDE TO THE WILD FLOWERS. By Norman Taylor. Published by Greenberg, New York. Price \$3.00.

This little handbook by the curator of the Brooklyn Botanic Garden is a guide to the wild flowers east of the Mississippi and north of Virginia. Some 1,200 of the more conspicuous species are described, of which over 500 are illustrated. Species of little or no interest to the amateur, such as the grasses, sedges, and rare or technical species, are not included. The book is designed as a simple and workable guide, although it still retains its scientific accuracy and may be used by the untrained botanist. Unlike Gray's Manual, it does not need a key. All of the species described fall into one or another of nine groups in the simplified key. The outstanding feature of Mr. Taylor's simplified key is the ingenious numbering method which makes the identification of flowers very easy. A boy or girl whose hobby is botany could use this book to the fullest advantage, the simplified classification is so well done. This would be a very handy text-book for a high school botany class interested in the flora of the region covered. There is an extensive index to the species in the back of the book.—A. E. D.

How Long Will Our Sawtimber Last?

(Continued from page 262)

owned timberlands. The extension of such practice may be expected only where timber operations are profitable, and that in turn depends upon the continuance of normal demand for forest products. At present there is some discouragement among operators at conditions attributed to overproduction. Although per capita consumption is declining, it should not be forgotten that the population is increasing at a rate which will more and more tend to keep demand for sawtimber in advance of the available supply. Such a condition is bound to be profitable to operators, provided the industry itself is not overdeveloped.

We have passed through a period in which region after region has been deforested to a greater or less degree. Region after region has felt the disappearance of local sawtimber, chiefly in the scarcity of choice grades and dimensions of the most popular species. Thanks to our transportation system, there has never been actual physical deprivation of quantity, for practically unlimited quantities of sawtimber could have been delivered at any point within a reasonable period, provided consumers had desired to pay for such service. Strange as it may seem at this time of overproduction, we are now facing a period of deprivation in quantity, during which the ample ration of sawtimber, to which Americans have been accustomed, will be gradually reduced.

Faster and faster we must taper off, for consumption must eventually be confined to a quantity no greater than the annual growth plus such imports as may then be available. The pinch for sufficient quantity will apparently be felt first in hardwoods, because the limit of the available hardwoods seems to be five to ten years nearer than the limit of the softwoods.

Unless the 1920 figures are much less reliable than is believed, the approach of forest exhaustion will rapidly cut down the ration of softwood sawtimber before 1950, and within the latter half of this century Americans will be completely dependent upon what they can grow and what little they can buy from other countries. The prospect for imports at that time is distinctly unfavorable, particularly so for softwoods.

After all, this tapering off means merely the gradual transition from the log-cabin stage; through the lumber-dwelling stage, to conditions where most permanent building will be of mineral rather than vegetable materials. Much of Europe had reached the stone-house stage long before the ax and the fire began to deforest America. Western Europe has been able to carry along on a modest ration, but would gladly use more. Living that way is not an impossibility. But it is not the best way, and it is to be expected that our descendants will meet their

problem of supply rather more successfully than Europe has done.

We have been accustomed to use sawtimber and to think in terms of sawtimber. It is possible that we may learn to think in terms of wood, or even in terms of wood fiber. If our ration of large-sized sawed timber is too much restricted, the wood pulp experts may fill the gap with lumber made from logging waste and from trees which are not now classed as sawtimber. The advances made in research along those lines are very significant.

If artificial lumber should eventually become as useful as the product sawed from logs, the outlook would be changed in many ways. The available stand would be greatly increased. The timber could be grown to suitable size in much less time. That in turn might have an important bearing on the permanence of production centers. It might also help to put our great areas of idle forest lands at work, an economic problem which to some minds is no less important than that of sawtimber supply.

According to R. Zon and W. N. Sparhawk in *Forest Resources of the World*, the average per capita consumption of sawtimber in Germany, France, Great Britain, and Ireland is normally about 125 board feet. Very little is used in the form of lumber. Our per capita consumption in 1920 was 500 board feet, of which about 315 feet was lumber and the remaining 185 feet was used in other forms. The chances are, considering the great extent of our railroads and our great rural territory, that we shall feel pinched if there should be a smaller supply than 300 board feet of sawtimber per capita, even with all the compensating advantages that the year 2000 may provide. Advanced civilization needs adequate timber supplies. If at that time the United States has 186 million people as forecasted, the requirement for consumption would be fifty-six billion board feet, which is more than we now consume. The best yield expected from the rather general application of crude forest management would be less than half this requirement. The other half or any substantial part of it could not be had by purchase. How is the balance to be secured?

The answer is that it must be grown. That is a very different matter from allowing it to grow. It means more than merely keeping out fires and letting nature do the rest. That happy solution may work on some lands. Perhaps we have underestimated what southern pines, for example, will yield. But fully a fifth of the lands which will have to be used will hardly grow cordwood, let alone sawtimber. So there will have to be forestry of a high grade, and it in turn will have to be based upon ample scientific investigations. Otherwise, Ameri-

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cans may have to get along for a time with a very modest ration of sawtimber, like their cousins in Europe.

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Weather Study Aids Forest Fire Protection in Northeast

Adequate forest fire protection is of paramount importance to the practice of forestry in New England and New York, says the United States Forest Service. Preparations are now under way to combat the "red menace" during the heavy spring fire season in this region.

With an average annual total of 4,777 forest fires in New York and New England, which burn over 140,480 acres of forest land and cause a loss of approximately \$586,909 yearly to timber, young growth, and improvements, it is declared imperative that every measure be used to reduce this tremendous loss caused almost entirely by carelessness.

A study of forest fire weather is one of the major projects which has lately been undertaken by the Northeastern Forest Experiment Station in co-operation with the Weather Bureau and the several states to back up the fire protection efforts in this region. A well organized and trained corps of forest fire fighters equipped with every possible means for prompt detection and suppression of fires is not the entire solution of the fire problem. Greater efficiency both in man power and money expended will result when it is possible to predict conditions which cause dangerous periods in forest lands. Since fires occur in forested areas only when the forest fuels are dry enough to burn, and since this dryness depends upon weather conditions, it is evident that a study of weather conditions in relation to forest fire should be of pronounced importance in any system of proper forest fire protection.

Initiated in 1925, the fire-weather investigations have developed until there are now four stations where studies are being made in the more important forest types of the northeast. These stations are at Cranberry Lake, New York; Elk Lake, New York; Petersham, Massachusetts, and Smyrna Mills, Maine. The New York State College of Forestry, the New York State Conservation Commission, Empire State Forest Products Association, Harvard School of Forestry, and Maine Forest Service, all are co-operating with the Forest Service in the investigations. It is hoped that two additional stations can be established, one in the pitch pine-scrub oak forest type in the Cape

Cod region and one in the transitional hardwood forest type of southern Massachusetts, Connecticut, and New York.

Forestry at Lehigh University

Although there is no curriculum or course of study in forestry at Lehigh University, Bethlehem, Pennsylvania, the interest of the institution in forestry is evidenced in the recent creation of an arboretum and forest plantation on the campus. The area thus utilized was nearly depopulated in 1907 by the chestnut blight.

The general purpose of the arboretum is to furnish specimen trees of all native varieties for scientific study. This is an adjunct to the Department of Botany. Two hundred varieties of trees were planted in this tract and this collection will remain permanently intact by replacement when necessary. The forest plantation was created as a practical laboratory for the study of the growth of native trees under adverse conditions. It consists of six hilly acres of poor soil and is very much exposed to the elements typical of many regions in northern Pennsylvania. It contains mostly timber trees. In addition, a small nursery is maintained for supplying trees for replanting on the campus.

Larch Canker in Rhode Island

New outbreaks of the European Larch Canker in Rhode Island have been reported by the office of Forest Pathology, Bureau of Plant Industry. The latest discovery was on planted Douglas fir in the Goddard Memorial Park, near East Greenwich. Many of the trees have been severely injured.

Georgia Awards Prizes in Essay Contest

Awards have been made in the prize essay contest conducted by the Georgia Forestry Association for the best essay submitted by Georgia school girls and boys based on information contained in or suggested by the Forestry Primer, published by the American Tree Association, Washington, D. C. Miss Irene Gibson, of the Joseph E. Brown Junior High School, Atlanta, and Miss Margye Liles, of the Woodbine High School, Woodbine, were the prize winners, each receiving \$25. The second prizes of \$20 each went to Miss Helen Hollis Childs, of the Forsyth High School, Forsyth, and Miss Lucy Corbett, of the Emerson Park Junior High School, Waycross. Emory M. Hiers, of the Pavo High School, Pavo, was awarded the third prize of \$15, and the fourth prize of \$10 went to Miss Mary Whitfield, Hawkinsville High School, Hawkinsville. Twenty-five prizes of \$2 each, and fifty prizes of \$1 each were also awarded.

The Forestry Primer was published to mark the completion of fifty years since the United States took the first step in forestry, and more than two million copies are now in circulation throughout the United States, chiefly in schools.

Eighth National Conference on State Parks

Plans for the Eighth National Conference on State Parks, to be held at San Francisco, California, June 26 to 29, inclusive, and in Los Angeles, California, July 2, are rapidly taking shape.

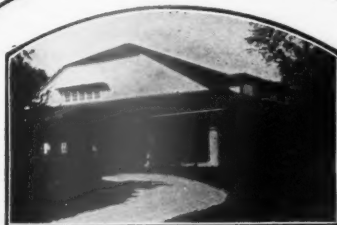
Every phase of state recreational development will be discussed, including legislation, administration, sanitation, park architecture, the recreational use of state forests, and game problems. One session of the Conference will be devoted entirely to California recreation and to the \$6,000,000 bond issue.

The program will open at 10:00 a. m., June 26, at the Mark Hopkins Hotel, with Chairman Stephen T. Mather presiding. Governor C. C. Young, of California, who has so enthusiastically supported the park program, will deliver the welcoming address, followed by Dr. J. C. Merriam, President of the Carnegie Institute of Washington, who will talk on "Parks as an Opportunity and Responsibility of the States."

Other speakers in San Francisco and Los Angeles will be Major W. A. Welch, General Manager of the Palisades Interstate Park, New York; Colonel Richard Lieber, Director of the Department of Conservation of Indiana; Wilbur A. Nelson, Corcoran Professor of Geology at the University of Virginia; Colonel D. C. Chapman, Chairman of the Great Smoky Mountain National Park Association of Tennessee; Judge Robert Sawyer, Chairman of the Highway Commission of Oregon; Edmund Secrest, State Forester of Ohio; Duncan McDuffie, of San Francisco; William E. Colby, Chairman of the State Park Commission of California; the members of the Commission, Dr. Ray Lyman Wilbur, President of the Leland Stanford, Jr., University; Henry William O'Melveny, Frederick Russell Burnham, and ex-Senator William F. Chandler.

The California Committee has arranged a most enjoyable series of inspection trips, including a sightseeing tour of San Francisco, and on Wednesday, June 27, an all-day trip to Mount Tamalpais and Muir Woods, with a barbecue in the evening. Muir Woods is a National Monument, and contains one of the outstanding redwood groves.

On Friday, June 29, the delegates will leave by motor for the California State Redwood Park, in the Big Basin, Santa Cruz County—the oldest and largest of California's state parks. The trip to the park will probably be made via the Skyline Boulevard from San Francisco, arriving at the Big Basin in time for a luncheon meeting. Colonel Charles B. Wing, Chief of the Division of State Parks of California, for many years a member of the commission administering the park, will conduct the delegates through the park. Return to San Francisco will be made along the Coast Highway through Santa Cruz, Pescadero, via La Honda.



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Season to Open Early at All National Parks

National parks of the United States will open this year two weeks earlier than usual, because the past season has been mild and there are no heavy snows barring the parks from use, according to H. M. Albright, Assistant Director of the Park Service.

"Where the northern parks are usually opened about June 15," says Mr. Albright, "the bars will this year be down about June 1. Those who travel by rail will have little opportunity to take advantage of this early opening because the railroads must maintain their regular schedules in offering special rates and providing for advantageous visits to the parks. The automobile tourist, however, makes up the great majority of the more than two million people who every year visit the parks, and he may this year enter two weeks earlier than usual."

There will be a good deal that is new to see this year, Mr. Albright declares. Probably the outstanding new feature in viewing the national wonders will be the opening up of the northern rim of the Grand Canyon. For many years the tourist has seen the Canyon only from the south rim. It has been accessible only from the Arizona side. Now it may be viewed from the north. On that side the cliffs are a thousand feet higher than on the south and the country is

wilder. The road from Cedar City, 200 miles away, has been put in excellent condition. It comes down through Bryce and Zion Parks, in Utah, themselves objects of great scenic beauty.

Another of the new features of this season will be the Ahwahnee Hotel, in the Yosemite, an establishment that has been styled the finest resort hotel in the world, which designation is largely due to the magnificence of its setting and the views from its windows. At Mount Rainier National Park new hotel accommodations will also be provided and there will be various minor features such as a \$300,000 addition to Old Faithful Inn in Yellowstone. Along with these improved facilities for those who live in hotels the camps for automobile tourists will be enlarged and improved.

There will be a number of new roads opened up this season. In Yellowstone the Firehole Cutoff, a spectacular bit of road building, will be open. It hugs a cliff along a roaring torrent and exposes another of those weird wonders of this park, the one-time chimney of a geyser, now inactive.

The Zion Park road, on which \$1,300,000 is being spent in eight miles, a mile and a half of which is through tunnels, is now half way through. In Mount Rainier Park a roadway is being built that hugs the mountain just below the line of the snouts of its many glaciers. Logan Pass road in Glacier National Park, connecting the half of it that is on the Pacific slope with that which is on the Atlantic slope, is being pushed ahead. Even in far away Alaska a road is being cut into Mount McKinley National Park.

Last year there were 2,354,643 people who visited the National Parks. With the improved roads, facilities, and the lengthened season, the numbers this year may reach 3,000,000.

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They cannot, in the small space allotted to them, list all of their products, and Members are urged to write to them for complete catalogs.

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How to Know Them Where to See Them

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Over 8000 copies have been sold
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The American Forestry Association

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WASHINGTON, D. C.

Who Killed Santa Rosa?

(Continued from page 266)

"The malicious pleasure of destroying everything of which I had planted the germ, and the base purpose of representing as wasteful prodigality the most useful and most economical expenditures are the motives that act upon the Secretary of the Navy and the present administration.

"It happened that for the live oak plantation purchases were made of about 1,600 acres of land from White and Brackenridge, and although the timber upon them was worth more than they cost, this circumstance was seized upon to represent the transaction as a fraudulent job and squandering of public money. . . . The plantation both of young trees growing when I commenced it and of those from the acorn which I had caused to be planted is now in a condition as flourishing as possible, and more than 100,000 live oaks are growing upon it. All is to be abandoned by the stolid ignorance and stupid malignity of John Branch and his filthy subaltern, Amos Kendall."

Who killed Santa Rosa? Who, indeed? Perhaps it would be more correct to ask, "What killed Santa Rosa?" Human nature is human nature, world without end. And so is politics. And so is cussedness.

Adopt Specifications for Hardwood Creosote Oil

The adoption of standard specifications for hardwood creosote oil by the National Wood Chemical Association is one of the most important actions yet taken by the association in connection with tar utilization, says Dr. L. F. Hawley, of the United States Forest Products Laboratory, at Madison, Wisconsin. The market for hardwood creosote oil and similar distillates in the past has not developed at a rate commensurate with the value of these products because of the variation in the oil produced by different distillers. This lack of uniformity, he declared, has caused considerable uncertainty on the part of large buyers of tar products who might be obliged to consider the possibility of having to purchase from several sources. With the adoption of standard specifications the oil may be purchased from any producer in the National Wood Chemical Association with full assurance that it will be of standard quality.

Commercial Forestry Conference in Wisconsin

Creation of a permanent commercial forestry association for Wisconsin to promote

interest in reforestation and preservation of the state's timber resources was the outstanding resolution adopted by the Wisconsin Commercial Forestry Conference, at Milwaukee, March 28 and 29. The conference was the first state or regional meeting to follow the national conference on commercial forestry at Chicago last winter. It was sponsored by the Chamber of Commerce of the United States and the Milwaukee Association of Chambers.

The resolution recommended that the executive committee of the conference be authorized to formulate a plan for the permanent commercial forestry association.

Other resolutions recommended that the land economic survey undertaken by the state agriculture commission be continued and completed and that it be extended, if possible, to the individual counties of the state.

That county boards and other local agencies give "careful study to reforestation with a view toward the solution of the delinquent taxes."

That there be a large increase in the rate at which "denuded and unproductive forest lands" are being replanted and that the state's facilities for the production of forest planting stock be increased.

That state appropriations for fire protection and suppression be increased.

That the work of the various forestry organizations "be along research lines more definitely unified and their activities correlated."

That special attention be given to the promotion of a forestry policy through the organization of special committees for this purpose.

The land and forest situation of Wisconsin was clearly presented in the opening session by Prof. B. H. Hibbard, of the University of Wisconsin; Raphael Zon, director of the Lake States Forest Experiment Station; Ben F. Springer, president of the Wisconsin Retail Lumbermen's Association; R. G. Knutson, of the State Industrial Commission. The evening session of the first day was devoted to fire protection and suppression and was featured by addresses by C. L. Harrington, Superintendent of State Forests and Parks, and C. L. Cecil, of the Cornell Wood Products Company.

March 29 was devoted to commercial forestry, and among the papers presented were "Progress in Farm Timberlot Forestry," by F. G. Wilson, Extension Forester, University of Wisconsin; "Immature Timber as a Business Investment," by G. Harold Earle, of the Wisconsin Land and Lumber Company; "The Importance of Close Utilization of Forest Products to the Profitable Growing of Trees," by C. P. Winslow, director of the Forest Products Laboratory, at Madison.

Forest taxation was discussed by John Schroeder, of the John Schroeder Lumber Company, George W. Blanchard, Eugene Wengert, W. R. Wheaton, and R. B. Goodman.

Migratory Bird Treaty Act Regulations Amended

Amendments to the Migratory Bird Treaty Act Regulations, changing the classification of gallinules, the open seasons in a number of states, and the sinkbox regulation, have been adopted by Secretary of Agriculture Jardine and approved by the president. Gallinules are no longer classified under the open season for wild ducks and geese, being now included in the open season for rails. In Illinois the season on waterfowl will open next fall on September 16 and close December 31, in lieu of the former period from October 1 to January 15. In Massachusetts the season on rails and gallinules, with the exception of coot, is changed from the period September 1 to November 30 to September 16 to December 15.

In South Carolina, Georgia, Florida, Alabama, and Mississippi the open season on mourning doves has been changed from the period October 16 to January 31 to two periods covering the month of September, and from November 20 to January 31.

The provision prohibiting the use of sinkboxes in strictly inland water in the hunting of migratory waterfowl was not changed, but the restriction having application to the

distance between sinkboxes, and between sinkboxes and shore lines or islands, has been eliminated. Under the regulations of last season it was required that sinkboxes used in the taking of waterfowl in coastal sounds and bays and other coastal waters be placed not less than 700 yards from the shore line of the mainland at ordinary high tide, not less than 700 yards from any island at ordinary high tide, and not less than 700 yards from any other sinkbox.

White House Lumber in Demand

Because it was "presidential timber," much discussed these days, old lumber taken from the roof of the White House last summer during the remodeling of the mansion, sold for as high as four dollars a linear foot when the bids were recently opened at the Office of Public Buildings and Parks, in Washington.

The historic wood, which has literally held the roof over the heads of twenty-six presidents of the United States during the last 112 years, will be perpetuated in the form of gavels, wall plaques, chairs and all sorts of souvenirs by the patriotic, historic and other organizations which bid for it.

The lumber, rivaling in historic and sentimental interest the wood taken from "Old Ironsides," the famous frigate, and now being made into walking sticks, book ends, and gavels, is longleaf Virginia pine, all in excellent condition, although in use over a century.



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This fascinating book, "Your Bird Friends and How to Win Them," sent to anyone who loves our beautiful song birds. Full of things you should know. Based on a lifetime of close bird-life study. Also contains description and prices of Dodson Bird Houses, Shelters, etc.

Birds Protect Trees, Shrubs and Plants

NATURE gave us birds as a natural combative force against the ravages of insects. We should encourage bird life, not only for the protection they give us, but because of the joy and song they bring as they busy themselves building their nests, killing bugs and insects, eating the destructive larvæ etc. Birds will rid trees, shrubs and plants of injurious moths, beetles, cutworms, etc.

Thirty-six species of birds attack insects. The most useful of these are the Purple Martins, who kill thousands of mosquitoes daily, as well as the destructive insects and larvæ. Other birds that protect our trees and shrubs are the Flicker, Scarlet Tanager, Yellow-Throated Warbler, Grosbeaks, etc.

Encourage the birds, feed them, provide them houses to live in and places to nest and carry on their fight against insects and bugs.

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FLICKER HOUSE

Is a sure lure for these very useful birds. The flicker is one of the most useful birds, destroying moths, tree pests and principally ants on trees and ground. Many letters have been received stating that ants have mysteriously vanished since these birds have found homes.



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Allan Brooks

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of the habits and distribution of each bird. Pre-
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North America

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WASHINGTON, D. C.

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care of trees, shrubs, flowers, and lawns. Per-
manent position in Chicago. Should speak Eng-
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in detail, education, and salary expected.

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Conservation Survey in Illinois

State game farms and fish hatcheries in
Illinois, to be operated at various State in-
stitutions, without cost to taxpayers, will re-
sult from plans outlined in the meeting of
representatives of the leading conservation
associations of Illinois, called by Governor
Len Small.

An immediate survey will be made to
show which of the State institutions offer
best advantages for the propagation of fish,
and as game farms. From the leaders in
conservation movements, volunteer commit-
tees will visit each State institution to in-
vestigate conditions with this end in view.

Conservationists who have been invited to
co-operate with the State Departments of
Conservation and Public Welfare in this con-
structive conservation program are: Dr. P.
R. Blodgett, Chicago Heights, President,
Izaak Walton League; O. M. Schantz,
Chicago, President, Audubon Society; H. C.
Norcross, Carlyle, President, Illinois Sports-
mens League; Wm. H. Stuart, Chicago,
President, Fish Fans Club; Brooke Anderson,
Chicago, Member Advisory Board United
States Biological Survey; Robert Scholes,
Peoria, Otto W. Lehmann, Lake Villa, and
Dana Rollins, Bloomington, Members Ad-
visory Board of State Department of Con-
servation, and C. F. Mansfield, Jr., Spring-
field, Secretary, Illinois Conservation and
Flood Control Association.

Every suitable stream, lake and pond in
Illinois will be well stocked within a year
or two if the present program is carried
out. Ten hatcheries completed or to be
completed this spring, combined with those
planned at various State institutions will
produce an ample supply of fish with short
haul deliveries.

Hatcheries at present completed or under
construction are located at Spring Grove,
Yorkville, Rockford, Wyanet, Geneseo,
Woodford County, Peoria, Kankakee,
Decatur, East St. Louis, Mattoon and
Carlyle.

Capital Women Ask More Speed in Tree Planting

Estimating that it will take ninety years
to carry out the tree-planting program on
Washington streets at the present slow rate
of progress, the parks and zoning committee
of the Women's City Club recently appealed
to the District Commissioners to speed up
the work.

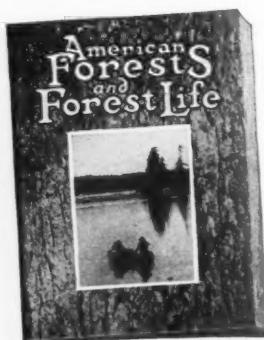
The thought that none of the club mem-
bers could live to see their desires fulfilled
unless something radical is done to change
the situation spurred the committee to call
the program outlined before Congress to at-
tention of the Commissioners in a communi-
cation. The committee urged the city officials
to revise their estimates for action in this
Congress, pointing out the system can ill
afford to wait another year before progres-
sive measures are inaugurated.

One of the measures emphasized is an
adequate tree nursery. While the mainte-
nance cost is estimated at \$14,000 annually,
this nursery can be counted upon in 1929,
according to the proposals, to furnish only
1,000 of the 2,500 trees it is proposed to plant.
In contrast to this, they point out the circum-
stance that the nurseries in operation in
1913, when 4,571 trees were planted, were
maintained at slightly less than three thou-
sand dollars.

The committee also recommends the ap-
pointment of a commission, composed of an
arboriculturist, a landscape gardener and a
citizen of Washington, to confer with the
Commissioners and with the public on tree

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Fill in the last line and mail the application to a friend. He will appreciate the courtesy.



American Forests and Forest
Life is sent monthly to all
except Annual Members

Application for Membership in The American Forestry Association

The AMERICAN FORESTRY ASSOCIATION

1523 L Street N. W., Washington, D. C.:

I hereby apply for membership in The American Forestry Association and enclose \$.....

Date.....

INDICATE CLASS OF MEMBERSHIP DESIRED

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|--|----------|
| <input type="checkbox"/> Subscribing membership, per year, including Magazine..... | \$4.00 |
| <input type="checkbox"/> Contributing Membership, per year, including Magazine..... | 10.00 |
| <input type="checkbox"/> Sustaining Membership, per year, including Magazine..... | 25.00 |
| <input type="checkbox"/> Life Membership (no other dues for life), including Magazine..... | 100.00 |
| <input type="checkbox"/> Patron Membership (no other dues for life), including Magazine..... | 1,000.00 |
| <input type="checkbox"/> Annual Membership, without Magazine..... | 1.00 |

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May, 1928



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Since you can sing,
With heaven-uplifted head,
My still unuttered song;
Since you can hold
In strong embrace
The laughing little ones
My empty arms ne'er knew;
Since you can feel
In every dancing leaf
The sun's glad ray,
And through the vibrant night
Hold converse with the stars,
Great worlds, long shut from me
By man-made walls of brick and stone;
And since when you must fall,
Your heart torn wide by screaming saw,
Your crown of glory gone,
You can become a part
Of my dream house—
Unbuilt yet—
Therefore I lay
At your still feet
The clay that cased my soul.
It shall become a part
Of that I missed.

—J. L.

Famous Author Makes Plea for American Forests

In a recent issue of the *American Legion Magazine*, Robert W. Chambers, world-famous author, in an article entitled "Think Ahead," very forcibly described the need for an immediate reforestation program throughout the United States. He said, in part:

"The two most important problems for this nation to solve are how to grow forests sufficient for the national needs, and how to prevent the pollution of all inland and coastal waters. A sure sign of decadence of a people is the decadence of their forests. Look at your maps of Europe, Asia, and Africa. Where forests fail, people fail.

"Today we are using and wasting far more timber than we are growing. This is the result of our careless, shiftless generosity to ourselves and to strangers. A sorry heritage to our children. It takes God a hundred years to grow a white pine; it takes a jackass ten minutes to fell it. It requires centuries to clothe a mountain with noble foliage. A fool and his cigarette can set it afire and destroy it in a day. Pure water, pure air, fertile fields, perennial forests, flood control—these rightfully are our children's heritage. We have already National Forests, state forests, a few city, town, and communal stretches of woodland—all these make but a pin-point on the denuded map of North America. Every state should own and control its own revenue-producing forests.

"Forests are necessary, not only to give us timber for commercial use and for fuel—not only to help purify the air, control floods, store up moisture which keeps our springs and streams from drying up, offer food and shelter for wild game and birds—but to conserve and aid the fertility of the fields which grow our crops and feed our cattle.

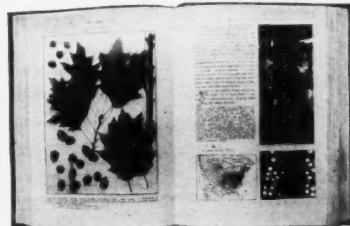
"To our forefathers the vast black forest was a menace, a giant to conquer, and from which to wrest a little stretch of sunny land on which grain might be grown to keep alive the pioneer. It is possibly for this reason that a national disrespect for forests still prevails among us. But the time is come when we must alter our opinion and behavior. The main idea is to grow at little cost and labor upon otherwise useless and barren land revenue-producing forests which will remain perpetually, help conserve moisture and fertility, give refuge and food to man and beast and bird, keep springs flowing and trout brooks full, and bring back to the life of the American people something that they are already beginning to miss.

"Hell to a southerner is a hot abode; hell to a northerner an iceberg. To an American who has known his country before imbecility and greed destroyed it, Hell is a treeless desert set with the dead bones of murdered rivers, and washed by a sewer which was once an ocean."

Mention AMERICAN FORESTS and FOREST LIFE—It Helps

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The Accepted Standard



Handbook of Trees

The 891 illustrations enable one to identify all of the trees east of the Rocky Mountains and north of the Gulf States at any season.

\$8 and \$15, according to binding.

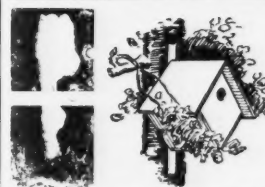
American Woods

A collection of wood sections (showing the end "quarter" and "flat" grains of each wood) with text telling uses, properties, distribution, etc. The plates containing the specimens can be taken out for comparison or school room uses. Ideal for teachers. In 13 volumes, each containing 25 specimens. \$10 and \$15 per vol. according to binding.

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Ask the Forester ?

Each Month Forestry Questions Submitted to the Association Will be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Must Accompany Letter.

QUESTION: Can you tell me approximately how many acres are burned over annually in the state of Minnesota?—D. T., Illinois.

ANSWER: A recent bulletin by the Minnesota Forest Service gives a thousand fires a year and nearly four thousand acres burned over annually as Minnesota's forest fire record during the past ten years. It is stated that 45 per cent of Minnesota land area, or approximately 23,500,000 acres, is in need of protection from forest fires. The state is now spending about \$200,000 annually for forest fire protection and federal and private agencies about \$100,000 annually.

QUESTION: Where does incense cedar grow and what are the chief uses of its wood?—A. J. J., Iowa.

ANSWER: Incense cedar (*Libocedres decurrens*) is confined primarily to California and southern Oregon. It grows under a variety of conditions of climate and altitude. It is a slow-growing tree and not a particular good lumber-producing tree because of its short body, rapid taper and susceptibility to fungus diseases. Lumber from the tree constitutes only about two per cent of the total cut of California. It is used for lumber, ties, box boards, pencils, slats, and posts. The wood is highly durable.

QUESTION: Has Congress ever appropriated money for the purchase of National Parks?—H. J., Conn.

ANSWER: No; except in the case of military national parks. Our National Park system has been created from federally owned lands or from lands turned over to the Government as a gift for park purposes. Within recent years, Congress has, however, appropriated small sums for the purchase of private lands inside established National Parks.

QUESTION: How can I keep field mice from eating the bark of my young pines during the winter. They have ringed a number for about four to six inches.—K. W. W., New York.

ANSWER: The best protection is a guard of fine wire netting, which should go in just below the surface. If this is not practicable, field mice are killed easily by trapping with poisoned bait.

QUESTION: I was much interested in your article in the April number, on the Chinese Elm. Will you tell me whether these trees can be grown satisfactorily on Long Island?—C. M., Long Island, N. Y.

ANSWER: While this tree is better known in the Southwest, we would not hesitate to recommend it for planting on Long Island, and believe you will get good results with it.

Honor Dean F. G. Miller

Twenty-five years of continuous service in the forestry profession received tribute when the Rocky Mountain Section of the Society of American Foresters arranged a banquet late in April to honor Dean F. G. Miller of the University of Idaho School of Forestry at Moscow. Dean Miller received his degree in forestry from Yale University in 1903, and has been actively engaged in the profession ever since. He came to the University of Idaho school of forestry as dean in 1917.

At the banquet Dean Miller was presented with a large book of letters and telegrams from national leaders in forestry. Among those congratulating him were Dean Henry S. Graves of the Yale School of Forestry; Colonel W. B. Greeley, retiring Chief of the United States Forest Service; and R. Y. Stuart, his successor. W. D. Vincent, State Commissioner of Education, was toastmaster.

Tributes to Dean Miller's work in behalf of Idaho forestry came from W. D. Humiston, assistant general manager of the Potlatch Lumber Company; Stanley Easton, vice-president and general manager of the Bunker Hill and Sullivan mining company, and member of the state board of education; Ben E. Bush, State Forester of Idaho; Malvin Bradner, of the United States Forest Service, Missoula, Montana; and A. D. Decker, of the Potlatch Lumber Company.

Utah College Has Forestry Course

A four-year course in forestry has been started by the School of Agriculture of the Utah Agricultural College. The course offers opportunity for specializing in range management in the senior year. Provision is made for a six weeks' summer camp between the sophomore and junior years.

Hardwoods in the Yellowstone

New evidence has recently been brought to light, says the *Forest Worker*, that magnolias, sycamores, and chestnut trees once flourished in the region of the Yellowstone National Park, where the redwood is also known to have lived. The blasting away of a ledge to widen a section of the park's loop road between Mammoth Hot Springs and Camp Roosevelt has revealed tons of rocks bearing the fossil imprint of leaves and twigs of these species. The outlines are wonderfully distinct. In the opinion of Professor H. L. Mason, of the University of California, the material of which this rock was formed accumulated about four million years ago during a volcanic eruption that destroyed the trees and buried the leaves. From the abundance of chestnut leaves it appears that the chestnut was one of the most common trees in this prehistoric forest.

New Forest Nursery in North Carolina

The purchase of a ten-acre tract near Clayton, Johnston County, North Carolina, for a forest nursery and the beginning of activities on the site have made possible a substantial enlargement of forest tree production and of reforestation by artificial planting in the State.

Preparations have been made for the production of approximately half a million seedlings next year, more than double the estimated output for this year. For the future, a progressive plan of output has been made which will continue to grow in volume until millions of the seedlings are made available annually.

In addition to the regular output, a request has been made by a large landowner for advice and assistance in rearing 1,000,000 longleaf pine seedlings over a period of years.

New Forestry Films Released

There has been a recent release of two films relating to forestry by the United States Department of Agriculture, *That Brush Fire!* and *The Forest—and Health.*

That Brush Fire! is a film book of rules governing the burning of brush by farmers, and is intended to assist in preventing disastrous woods fires which frequently result when necessary and seemingly harmless brush fires get beyond control and spread to the near-by woodlot or forest.

The Forest—and Health, which is a companion picture to *The Forest—and Water*, released last season, was made largely in the mountains of New England and in the Southern Appalachians and includes many beautiful scenes illustrative of the activities of Boy Scouts, Camp Fire Girls, camps, and campers and hikers in general.

Copies of these films may be had by application to the Office of Motion Pictures, United States Department of Agriculture, Washington, D. C., without cost other than that of transportation.

Bird-Census Takers Wanted

Bird students are invited this year, as in the past, to assist the United States Biological Survey in taking censuses of breeding birds on tracts convenient to their homes. Such a census of birds means an exact and complete enumeration, by species, of the birds that actually nest within the boundaries of a selected area. Reports are desired on many types of land, such as farmlands, woodlands and forests, near irrigation projects, in marshlands, and on the shores of rivers, lakes, and the sea, and in special areas, such as city parks, cemeteries, bird sanctuaries, and other spots having a dense population of birds.

Black Locust for Idaho

The place the black locust tree plays in farm forestry in Idaho is discussed in a new bulletin issued by the Idaho School of Forestry, at Moscow. In this pamphlet, "The Black Locust and How to Grow It," it is pointed out that as a combination shelter, commercial, and ornamental tree, there is none that equals the black locust for treeless belts of the state. Though native to the Appalachian Mountains, the black locust plays an important part in farm forestry in the West. Approximately three-fourths of the 500,000 young trees being distributed by the Idaho School of Forestry to farmers of the state this year are black locust.

Fire Prevention Contest

Seven communities of Simpson County, Mississippi, are competing in a one year fire prevention contest. Prizes will be awarded to the communities which report the lowest percentage of timberland burned over. This contest has already resulted in the lowest recorded acreage of timberland burned over ever recorded for this county.

To Promote Home Building

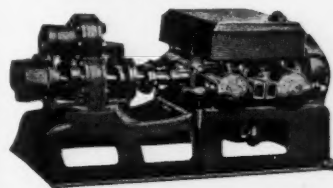
The National Manufacturers Association Trade Extension Committee at its meeting in Chicago, March 15-16, authorized co-operation of the Trade Extension staff with the National Home Building Council.

The National Home Building Council is, through their representatives, a group of the larger building industries and allied interests. Through promotion of construction and home improvement, its purpose is to stabilize, maintain, and develop volume and profits in industry and to absorb any decline from the "new construction" peak.

The present program of the Council calls for stimulating local interest among dealers, contractors, bankers, building and loan associations, and others to the needs and opportunities for local improvements; to provide co-operation of inter-industrial effort, furnishing plans, stimulating local advertising, and encouraging sound local financing or re-financing.

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The cover, which is suitable for framing, portrays, in a rich two-tone effect, one of the most magnificent forest scenes it has been our good fortune to secure. The booklet is 9 x 12 inches, printed on high-grade coated paper and brings together in one volume outstanding articles which have been published in past issues of **AMERICAN FORESTS AND FOREST LIFE**.



A limited number of copies are available at 25c each, postpaid.



THE AMERICAN FORESTRY ASSOCIATION
1523 L Street N. W.
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Film New Jersey's Fires

How the New Jersey Forest Fire Service fights and extinguishes the 1,000 or more forest fires which occur annually in this state is graphically shown in a new motion picture, "New Jersey's Forest Fire Service in Action," distributed by the State Department of Conservation and Development.

The picture was made in Chatsworth and vicinity under the supervision of Colonel Leonidas Coyle, state fire-warden. The fire scenes are actual pictures of forest fires, and the wardens appearing in these scenes are members of the New Jersey Forest Fire Service.

Such thrilling and instructive incidents as the ride to the fire over the rough woodland trails by the wardens and their crews, "sanding out" by means of shovels, "beating out" with brooms, and backfiring are all faithfully depicted in the picture. How the fire is located from the lookout towers and how the warning is sent to the warden nearest the fire are brought out in graphic detail.

Virginia Scouts to Grow Trees

Boy Scouts of Richmond, Virginia, are going to raise pine trees from the seed to reforest their camp ground in Chesterfield County, about one hundred acres of which was burned over in 1926. A small forest nursery is being started at the camp, and sowings will be made of each of the principal species of southern pine. Ten bushels of loblolly pine cones have been planted. The boys will do all the work of caring for the nursery and planting the trees, under proper supervision.

Redwood Grove Preserved

Destruction of a twenty-acre tract of redwoods near Crescent City, California, has been halted and the preservation of this area as a public park has been asked by the Save-the-Redwoods League and the Supervisors of Del Norte County and the State Highway Commission. The grove in question, known as the Webber tract, is the first piece of timber land reached on the new section of the Redwood Highway when traveling north of Crescent City, from which it is about four miles distant.

Oregon Lumber Manufacturer Adopts Forestry Methods

Among the first Oregon fir lumber manufacturers to adopt forestry methods to keep their lands permanently productive, the Booth-Kelly Lumber Company, of Eugene, has just finished an experimental planting of over 10,000 pine and redwood seedlings to supplement their policy of leaving fir seed trees when logging. The seedlings were supplied by the nursery maintained co-operatively by the state forest school, at Corvallis, and the Federal Government,

under the Clarke-McNary law. The planting was directed by Norman G. Jacobson, of the Western Forestry and Conservation Association's research and forest land management department.

Do Trees Grow at Night?

Experiments to determine whether or not trees grow at night, says *New Hampshire Forests*, have brought out the remarkable fact that they make about sixty-seven per cent of their growth at night and only thirty-three per cent during the day. This shows that the growth at night is about twice as fast as during the day. In addition, the experiment indicated that the greatest height growth of trees occurs late at night, and the least growth takes place in the middle of the afternoon of clear days.

Why Lost People Walk in Circles

Why do people lost in the woods walk in circles? In a recent issue of *Science Service*, Dr. A. A. Schaeffer, of the University of Kansas, makes known the results of experiments he has been conducting to determine this widely discussed action of a lost person.

Dr. Schaeffer has made over 300 experiments with blindfolded persons in different localities and under various conditions. The subjects walked, swam, rowed, and drove automobiles blindfolded, and in each case they steered essentially the same kind of a curving path. Usually they started out in a straight stretch, and then began to turn in circles, and these circles usually became smaller in diameter.

A twenty-four-year-old mental imbecile, with the mind of a four-year-old child, was tested, and the path he took was like that of a normal person, indicating that intellect does not play any large part in directing the spiraling mechanism. No connection between right and left handedness and the direction taken by the spiral turns could be found.

"There is no doubt that the same mechanism that produces these experimental spirals when blindfolded also makes one go in circles when lost," he stated.

To be lost, he explained, means that the orienting senses are not functioning.

The spiraling mechanism appears to be located in the central nervous system and to operate when the mechanism that controls balance and orientation is not in normal control.

Deer Attacks Auto

Recently, near Hammonton, New Jersey, a deer crashed out of the woods on the state highway and faced an automobile driven at a high rate of speed. Instead of being frightened away the animal reared as the machine approached, its antlers crashing through the windshield. So terrific was the impact that the deer's neck was broken and the machine was badly damaged.

Colonel Greeley Again a Director

Colonel William B. Greeley, who retires as Chief of the United States Forest Service on May 1st to become affiliated with the West Coast Lumber Manufacturers' Association, has been elected a Director of The American Forestry Association to serve for the remainder of 1928. Colonel Greeley's selection was made by the Board at its meeting on March 21st to fill a vacancy created by the resignation of Colonel Henry W. Shoemaker, who had asked to be relieved because of inability to give to the Association the time which he felt a Director should give.

Colonel Greeley's selection brings back to the Board a Director who in the past has served the Association long and faithfully. Prior to January 1, 1927, Colonel Greeley had been a member of the Board for more than ten years and was reelected on that date for another term of five years. He resigned, however, because of a number of criticisms made during the grazing controversy over the Stanfield bill. These criticisms were to the effect that officials of the Forest Service directly identified with forest policies and activities of the government should not be officers of the Association, because their action might tend to embarrass the Association and lessen its influence as a disinterested exponent of public opinion.

Recognizing Colonel Greeley's outstanding ability as a forest leader and his unabated interest in the work of the Association the Directors felt that any possible criticism is now removed by his leaving the government service and that the Association should avail itself of his helpful services as a member of the Board. Colonel Greeley has accepted the appointment.

North Carolina Erects New Fire Tower

North Carolina's newest steel lookout tower is to be constructed in Pender County in co-operation with the Cooper River Lumber Company, of Wilmington. It will command a range of vision of approximately fifteen miles. On the east the scope will extend to the Atlantic Ocean and on the north and west to adjoining counties.

The structure will be eighty feet in height and will be surmounted by a closed-in glass cabin in which a forest lookout will be maintained. Telephone lines will connect the tower with ground stations.

Plants Million Trees Weekly

For the past eight weeks the New York Conservation Department has been receiving

orders for trees to be planted in reforestation projects this spring at the rate of more than a million trees a week. This exceeds spring planting orders received in any previous year and indications are that the 1928 planting will exceed 25,000,000 trees.

These orders come from farmers and individual land owners, farm bureaus, 4-H Clubs, sportsmen's organizations, counties, cities, towns, villages, school districts, boy scouts and various other organizations that are taking an active interest in the reforestation of idle land.

New Members Appointed to Wood Utilization Committee

The appointment of four new members to the National Committee on Wood Utilization of the Department of Commerce has been announced. The new members are: Ned G. Begle, President, Berst-Forester-Dixfield Company, New York City; J. C. Carlin, Chief Chemist, Tennessee Products Company, Nashville, Tennessee; Henry A. Gardner, Director, Institute of Paint and Varnish Research, Washington, D. C.; F. E. Schmitt, Managing Editor, *Engineering News-Record*, New York City.

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.... The 73-foot tower shown in the picture was erected on Mt. Desert, near Putney, W. Va., by the West Virginia Game and Fish Commission.



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STUMPAGE PRICES.—Lowest rates considered \$2.80 per M for western yellow pine, \$1.05 per M for Douglas fir and \$5.55 per M for other species. Rates to be readjusted on a date approximately three years from beginning of cutting and at three-year intervals thereafter.

DEPOSIT.—\$25,000 must be deposited with each bid, to be applied on the purchase price, refunded, or retained as liquidated damages, according to conditions of sale.

CONDITIONS.—Each bidder must submit with his bid a statement of his financial resources, including the funds available for use on this project, and, before final award, the person or company submitting the most acceptable bid will be required to show that he has immediately available or will have available as needed sufficient funds to provide the improvements, equipment and working capital necessary to enable him to meet the requirements of the agreement. The manufacture of the timber in or near Burns, Oregon, will be required. The conditions are given in full in the prospectus and sample contract.

FINAL DATE FOR BIDS.—Sealed bids will be received by the District Forester, Portland, Oregon, up to and not later than 2:00 P. M., June 1, 1928, and will be opened immediately thereafter.

The right to reject any and all bids reserved.

Before bids are submitted full information concerning the character of timber, conditions of sale, deposits, and the submission of bids should be obtained from the District Forester, Portland, Oregon, or the Forest Supervisor, John Day, Oregon.

Conservation Bills Move Forward in Congress

Passage of the McNary-Woodruff bill is forecasted by the position which the measure now holds in Congress. Fear is expressed, however, that the bill will not be enacted in the form passed by the Senate providing for an eight-year program of forest acquisition with total expenditures aggregating \$40,000,000. As passed by the House on March 14, the bill was radically amended, reducing the program to a two-year term with an annual authorization of \$2,000,000. The Senate, however, refused to concur with the House amendment and requested appointment of conferees. The bill is now awaiting action by the conferees of the two Houses and it is predicted that the result of their deliberations will be a measure providing for a four or five year program with appropriations of at least \$3,000,000 a year. The conferees are Senators McNary of Oregon, Keyes of New Hampshire, and Ransdell of Louisiana, and Representatives Haugen of Iowa, Purnell of Indiana, and Aswell of Louisiana.

The favorable progress of the McNary-Woodruff bill, which, upon passage, will make available immediately \$1,000,000 for forest purchases, has been instrumental in saving the Waterville Valley addition to the White Mountain National Forest. Upon the likelihood of additional funds being available, the National Forest Reservation Commission has given notice of its election to purchase under the option which will expire June 1. This purchase will add to the White Mountain National Forest 22,500 acres, of which some 800 acres are covered with virgin stands of spruce.

The McNary-McSweeney Forest Research bill has likewise made gratifying progress in Congress. Following the extended hearings held by the House and Senate Committees during February, the bill was passed by the Senate on April 16, and it is understood that on the same date the House Committee on Agriculture voted to report the bill favorably. Passage of this bill by the present Congress will be an outstanding accomplishment in that the measure will establish a comprehensive Federal program of forest research which is held to be the foundation of permanent progress in forestry in this country. The measure, if passed, will authorize appropriations aggregating over \$3,000,000 annually to support the work of government's forest experiment stations and to promote special investigations of tree diseases, forest insects, the habits of forest animals and birds, weather conditions in respect to forest fires, management of forest ranges, utilization and preservation of wood, reforestation, and a study of the timber requirements and timber supply of the United States.

Although passed by both Houses, the agricultural appropriation bill is still in conference, and the appropriations which will be made for forestry under this departmental

measure are still uncertain. The cut of \$100,000 for forest fire cooperation under the Clarke-McNary Act which was made by the Senate was restored in the House under the leadership of Congressman Scott Leavitt of Montana, and it is expected that the original item of \$1,200,000, approved by the Bureau of the Budget, will be retained by the conferees.

The outcome of Congressman Wingo's bill to create a National Park from the Mena Division of the Ouachita National Forest still hangs in the balance. Hearings on the measure, it is understood, have been completed, but up to the time of going to press the House Committee on Public Lands had not made its report. Friends of both the National Forests and the National Parks have bitterly opposed the passage of this bill on the grounds that it would establish a precedent of great menace to the integrity of the National Forest system and the accepted standards of the National Parks. At least six bills for other National Parks, local or regional in character, have been introduced in Congress, and it is pointed out that a precedent once established of creating mediocre National Parks primarily of local interest might eventually lead to a chaotic policy in the establishment of National Parks.

The Migratory Bird Conservation Bill is meeting with hard sledding. It has been the unfinished business of the Senate and the subject of a bitter fight every time it has come up for consideration. On April 16th it was badly mutilated with amendments one of which virtually killed its license fee feature and left it without financial support. Senator Norbeck immediately sought to save the measure by an amendment providing authorization for a direct appropriation of \$1,000,000 a year from the Federal Treasury. To the surprise of those following the bill, the amendment was adopted but no action taken on the final passage of the bill as amended.

Senator King's bill to make the Bear River marshes of Utah a migratory bird refuge was passed by the Senate early in March, and favorable action by the House is expected since the measure has the approval of the President and of the Bureau of the Budget.

The outlook for legislation giving relief to the Yellowstone elk is also encouraging. Congressman Leavitt's bill authorizing appropriation of \$150,000 to be matched by private contributions for the purchase of private lands within the Absaroka and Gallatin National Forests, on the northern border of Yellowstone National Park, was passed by the House on April 2. Congressman Winter's bill for similar purposes in the Jackson Hole country has also been reported out favorably. It is understood that the Bureau of the Budget has approved this expenditure of \$150,000 for the purchase of lands for elk ranges on the southern end of the park, contingent upon a sum of like amount being raised by private subscription.

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